





ANATOMICAL,
PATHOLOGICAL AND THERAPEUTIC
RESEARCHES

UPON THE DISEASE KNOWN UNDER THE NAME

OF

GASTRO-ENTERITE,

PUTRID, ADYNAMIC, ATAXIC, OR TYHOID FEVER, ETC.,

COMPARED WITH THE MOST COMMON ACUTE DISEASES.

BY P. CH. A. LOUIS,

President for Life of the Society for Medical Observation at Paris; Doctor of Medicine
of the Faculties of Paris and St. Petersburg; Member of the Royal Academy
of Medicine; Corresponding Member of the Imperial Medico-Chirurgical
Academy of St. Petersburg, and of Marseilles.

“Je sais que la vérité est dans les choses, et non dans mon esprit qui les
juge, et que moins je mets du mien dans les jugements que j'en porte, plus je
suis sûr d'approcher de la vérité.”

ÉMILE.

TRANSLATED FROM THE ORIGINAL FRENCH

BY HENRY I. BOWDITCH, M. D.

Fellow of the Massachusetts Medical Society and Member of the Society for Medical
Observation at Paris.

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ETC. ETC. ETC.

THIRD PART.

THIS part will contain in as many different chapters the history of the symptoms, the diagnostic signs of the disease, some cases in which it was latent, some in which its anatomical characteristics presented some uncertainty at the first glance, the history of some individuals whose affection assumed a more or less exactly the aspect of the typhoid disease, the symptoms of perforation of the small intestine, and, finally, the causes of the disease.

PART III.

DESCRIPTION OF SYMPTOMS.

CHAPTER I.

SYMPTOMS.

I. IN PATIENTS WHO DIED OF THE TYPHOID AFFECTION.

THE individuals attacked with the typhoid affection were young, from seventeen to thirty years of age ; mean age, twenty-three years ; no one was forty. Nearly all were habitually in good health, of a sufficiently strong constitution, moderate degree of flesh, and had been at Paris but a short time, from two to thirty months.* At the moment of attack they were in various circumstances. Some had been laboring to excess, but the greater number had worked not more than usual ; some had suffered from anxiety or trouble of mind for a certain length of time, but the majority were well pleased to be at Paris, obtained better food than at the place where they previously resided, and with merely one exception, had experienced no privations.

The disease commenced at various periods of the day, be-

* For details upon this point, see chapter upon causes. — LOUIS.

fore or after breakfast, during a meal, and generally with a certain degree of violence, by chills accompanied with trembling, headache, universal feeling of lassitude, anorexia, thirst, some pains in the abdomen, and in the majority of the cases liquid dejections supervened upon these symptoms during the first twenty-four hours. Heat followed the chills, and these recurred several days in succession in nearly all the subjects, generally in the evening or when the patients went to bed. After that the skin was constantly more or less hot and nearly always dry.

These symptoms presented nothing in them peculiar to any disease, and showed merely that the affection had its seat in the abdomen, and they successively became more and more violent. A little earlier or later, at different periods from the commencement, other symptoms began and gave to the disease its peculiar aspect. These symptoms related to the cerebral functions, to the organs of sense, to those of the abdomen, and they occurred as I will now describe.

The patients experienced a degree of weakness but little proportioned to the other symptoms and the apparent gravity of the disease, dazzling sensations on making a single step, when they arose upon their feet, or simply sat up. They had at first slight somnolency, which afterwards increased to such a degree that the patients fell immediately back into this state as soon as any one ceased conversing with them. Their memory was slow though generally sure; the patients disliked very much any exertion of their intellectual faculties, they were indifferent to whatever took place around them and to their own situation almost always, and many who had involuntary dejections did not even ask to have their clothing changed. Although constantly drowsy, they complained perpetually of want of sleep, for it was troubled with dreams and fatiguing, so that

the patients were always disposed, though vainly, to resist its approaches. Delirium accompanied the somnolency in many cases, very rarely preceded it, or commenced two, three, five, six or more days after it; sometimes it was slight and only during the night; at others it was more marked and almost constant; sometimes it was violent, the patient was furious so that the attendants were obliged to restrain him by means of a straight jacket, and like the somnolency, this symptom continued until death, save in some individuals in whom the disease lasted a long while before proving fatal.

Tinnitus aurium or buzzing in the ears was observed in rather a large number of individuals, and it was sometimes connected with deafness. This last symptom began a little later than the others, increased gradually and became extreme in some subjects, so that it was impossible to make them hear anything. The eyes were injected and somewhat smarting (*cuisants*), sometimes of a uniform rose tint, though very rarely so from the commencement, and to some patients objects appeared to be seen through a thick cloud or indistinctly, even when lying in bed. One had a slight strabismus. Many patients suffered from epistaxis from which they experienced no relief. The greater part presented upon the surface of the body an eruption of rose colored lenticular spots more or less thickly clustered together, and generally towards the tenth day of the disease, rarely the seventh, never before, and this eruption varied not less in its duration than in its abundance. Sudamina were frequently connected with it.

The abdomen was meteorised and rarely preserved to the end of the disease its natural form and size, and this meteorism, which remained always slight in some subjects, became gradually more marked in others, so that in a certain number of them the abdomen projected beyond the line of chest.

At the same time that these three orders of symptoms, which were more or less characteristic, developed themselves, the diarrhœa generally made more progress, the dejections became involuntary when there was a good deal of delirium, and in some individuals the fæcal matter was accompanied by a rather large quantity of blood. The tongue, which presented no very remarkable appearance in a great number of cases, was generally gluey or dry, sometimes ruddy or red, at times coated, at others not so, cracked or otherwise, blackish in certain patients, more or less thick in others. Many protruded it with difficulty ; it was trembling, and they left it between the teeth and seemed to forget to withdraw it. The deglutition was sometimes difficult ; the back part of the mouth more or less inflamed. Some individuals had pains in the epigastrium, nausea, but less frequent vomiting, which last took place at the later periods of the disease. The debility increased daily ; the patients trembled while standing erect, walked like drunken persons, and complained of this state at times ; afterwards they were able only with difficulty to satisfy the necessity of nature, and soon they became incapable of attending generally even to these wants, and passed the greater part or the whole of the day in the same position, ordinarily upon the back, and allowed themselves to be moved about like inert substances. At this period the skin on the sacrum became red and excoriated, and soon fell into a gangrenous condition ; the wounds caused by the blisters became covered with a pus of a very bad quality, had a livid color, and in some cases there were ulcerations or even a complete destruction of the skin over a greater or less extent of surface. The skin was generally very hot and dry ; chills occurred but seldom, and indicated the commencement of some secondary lesion, erysipelas, for example. The pulse continued much accelerated, and generally beat a

hundred times or more per minute, very rarely less than this number. It lost the fulness which it had in the greater part of the patients at the commencement of the disease, and became small, feeble, contracted and irregular, whilst in some patients it had a certain degree of fulness until death. Cough, which was observed in the majority of the cases, was rarely inconvenient, and was almost always accompanied with a sonorous râle throughout chest, to which in some patients, towards the end of life, was superadded a little crepitous râle, which was the only sign of inflammation of the pulmonary parenchyma, and it was ordinarily over a small extent.

The successive changes which took place in the countenance were remarkable. The face was bloated and purplish in the beginning of the disease in rather a large number of patients, but gradually it lost this appearance, and was, as it were, without expression; afterwards it had a sunken appearance, or there was stupor, or absolute indifference, or, as in some cases, the patient was apparently in a profound reverie, in violent excitement, or had merely a wildness of expression, according to the kind of delirium. In some cases, likewise, patient seemed as if suffering; in others I observed spasmodic motions of the lips, zygomatic muscles, of those of the lower jaw, or a permanent contraction of the eyelids. These spasms were sometimes of long continuance, and were observed likewise in other parts of the body, so that at one time there was subsultus tendinum, at another, very marked spasmodic motions of the upper extremities, at others, a permanent contraction of the same parts and of the muscles of the neck.

Finally, death occurred sometimes while the patient was in delirium, or in a kind of calm, the patients having lost their consciousness a few hours only; sometimes it occurred suddenly. Very often it was occasioned by the secondary lesions, or

was hastened by a rupture of the small intestine which caused almost always symptoms of acute peritonitis.

Such was the course of the disease in the majority of the cases of typhoid fever. In others this course was seriously modified either at the commencement or during its whole course. Thus, in many patients there was merely, during a certain space of time, a simple febrile excitement with great heat of skin, much thirst, little somnolency, some giddiness, an incomplete loss of appetite, moderate depression of strength, no diarrhœa, no pains in abdomen, and no symptom, in fact, marking surely the seat of the disease. Some of the patients (three) had no diarrhœa, and it was only after five, six, eight days, a little more or less, that pains in the abdomen and diarrhœa commenced in others, and afterwards the disease followed its wonted course. In some subjects the fever, after having commenced with some intensity, diminished, the debility was slight, the characteristic symptoms did not take place, the affection seemed slight, the patient seemed at first to have merely some little embarrassment about the functions of the stomach rather than any other disease. This was the latent form of the disease, as will be shown hereafter, and the diagnosis remained uncertain until death, or the moment when perforation of the intestine removed all doubt.

The most common external characteristics of the disease, its features, as it were, were still more altered in some cases by the intensity of many symptoms. Sometimes, in fact, the diarrhœa and meteorism were the most prominent, at others, the depression of strength, delirium, spasmodic motions of all kinds, and according as one or the other was most prominent the disease had the appearance of putrid or ataxic fever, sometimes likewise that of inflammatory fever in some patients in

whom the pulse was large, the integuments injected during the first days of the disease. In some individuals the somnolency was the most marked, and continued uninterruptedly although in a moderate degree ; there was no delirium, or it was very slight and notwithstanding the most grave lesions, the calmness continued until death. This was the form attributed to typhus.

Notwithstanding these different aspects, the affection was constantly the same, the principal disorder did not change. More or less serious lesions of the elliptical patches of the small intestine were always found at the autopsy, which lesions were more serious according to the proximity of the patches to the ileo-cæcal valve, presenting remarkable differences according to the duration of the disease, and accompanied by analogous changes of the corresponding mesenteric glands. The other organs were frequently diseased, but their lesions were not constant, and differed in some respects only from those which are observed in those who die of other acute diseases.

We shall, moreover, in the chapter on diagnosis show how it will be possible to avoid those errors into which a superficial observation would lead us necessarily in those cases in which the form of the disease differs most from that which it usually presents.

The duration of the disease varied from eight to forty days or more. Its different periods were not very distinct from one another in those individuals who died between the eighth and twelfth days. Its characteristic symptoms ceased some time before death in a certain number of cases in which the disease lasted a long while, and it was especially at these times that the fatal termination of the disease was the evident result of some accessory lesions.

II. IN PATIENTS WHO RECOVERED.

Among those in whom the disease was *severe* (fifty-seven) the symptoms were the same, except the permanent contraction of the muscles which did not exist, but they generally were less severe than in those cases in which the disease had a fatal termination. As in the latter, the diarrhœa and pains in the abdomen commenced with the first symptoms in the greater part of the patients, although in a somewhat smaller proportion, and a little later among the others. The diagnosis of the disease was uncertain, its seat indeterminate for a greater or less length of time in some individuals, and the predominance of some symptoms changed more or less the usual appearance of the disease in others, so as to give it the character of fevers called putrid, ataxic or inflammatory. However, after a longer or shorter time from the beginning, varying from fifteen to beyond fifty days, according to the rapid or slow march of the disease, the gravest and most characteristic symptoms, the somnolency, delirium and meteorism diminished, and soon ceased completely, the number of dejections became less, the thirst less severe, the tongue lost the somewhat brownish coat which was frequently observed, the pultaceous patches which it had upon it in some cases ceased to recur after having disappeared, and the organ gained a somewhat healthy aspect. The face became more natural in appearance; the patients began to observe what was taking place around them and demanded food; they seemed to begin anew their life, and this restoration, as it were to life, was at times very remarkable in some cases which were very rapid in their progress. The heat of the skin diminished, the pulse was less accelerated; and finally, all the functions returned to their natural state.

Some of the symptoms, however, were recovered from very

slowly, and, consequently, the convalescence was retarded ; the skin continued more or less hot ; the pulse somewhat accelerated, the diarrhœa continued without my being able to discover always that it was owing to errors of diet. A few individuals had copious and general perspiration over the body during the night, when, moreover, the other functions, especially the digestive, were in a natural, healthy condition, and the patients ate half or three quarters of the portion of food usually given to persons fully convalescent. And these night sweats resisted alike tonics and excitants, the infusion of cinchona and infusion of mint, so that they ceased only very slowly after continuing ten or fifteen days. The wounds produced by the blisters, those which succeeded the eschars upon the sacrum cicatrized, but very slowly, and formed a new obstacle to complete restoration to strength.

The cases in which the heat of the skin, the acceleration of the pulse, and the diarrhœa showed the most obstinacy, were those of patients who had experienced the gravest symptoms during a considerable space of time, and it was easy to explain the circumstance, inasmuch as the gravity of the symptoms indicates the gravity of the lesions, and, consequently, the former must necessarily disappear the more slowly according as the latter are of a more serious nature.

Emaciation, which was extreme in some cases, disappeared more slowly, according as the digestive functions were more or less completely re-established at the beginning of the convalescence which took place between the eighth and eightieth day and afterwards.* And this extreme difference depended

* I date the commencement of convalescence from the time at which the patients began to eat a little bread, this time being most convenient for use in these researches. — LOUIS.

less on the development of some secondary lesions, of a somewhat grave nature during the course of the disease, than upon the extreme slowness of its progress in the early periods of the affection in some subjects, as I have already stated.

We shall hereafter see what relates to treatment, or the effect of general or local blood-letting, tonics, blisters, and some other additional means, and I will limit myself for a time to the remark that the effect of therapeutic means was so little, that that we may at present pay no attention at all to it while we make this general description.

In those subjects in whom the disease was *slight*, the diarrhœa was shorter and less severe, the cerebral symptoms less frequent, less violent, of shorter duration than in the preceding. The same was, likewise, true with regard to the meteorism. However, the mean duration of the disease was not very different, being twenty-eight days and a third in one, and thirty-two in another. This shows that the disease went on very slowly in some of these cases, so that during two, three, four or more weeks, which preceded the entrance of a certain number of patients into the hospital, they experienced only slight symptoms, a little diarrhœa, a slight diminution in the strength and appetite. These symptoms continued, likewise, in the same manner for some time after their entrance into the hospital; afterwards a little meteorism, delirium, somnolency, rose colored lenticular spots or sudamina were observed, and indicated the true cause of the first symptoms, which it was impossible then to attribute to any other lesion than that of the elliptical patches of the ileum.

The spasmodic stiffness of the limbs or eyelids, as I have already stated, was not observed in any case in which the pa-

tient recovered. The pulse was generally less accelerated and less full in these cases than in the others ; the mean age of those who recovered was twenty-one years ; the mean age of those who died, twenty-three. The former had been at Paris fourteen months ; the second, eleven, Hence it follows that the *prognosis* of the typhoid affection must generally be less grave in very young subjects,* in those in whom the pulse is moderately accelerated and full, and who have been at Paris more than one year, than in those who are in different circumstances.

Nevertheless, in the chapter on the latent form of the disease, the reader will learn that whatever may be the benignity of the symptoms of the typhoid affection, still it is a very formidable disease, since we must always fear perforation of the intestine in the slight as well as in the severe cases. Of the truth of the above assertion the reader will be satisfied on perusing the chapter upon the latent form of the disease. The prognosis, therefore, can never be certain in this disease, inasmuch as we cannot be sure of recovery until the patient be fairly convalescent.

After having given in detail a general view of the symptoms which occurred in the patients affected with typhoid fever, I shall give the facts relating to each one of them. I shall strive particularly to determine with precision the commencement, duration, intensity of the symptoms, with their relation to the lesions which correspond to them in those patients who died. When I have decided this relation, I shall study the same symptoms in individuals attacked with the typhoid affection and who recovered, and when I meet it I shall conclude from

* See the chapter on the causes of the typhoid affection. — LOUIS.

it the existence of the lesion to which I shall see it correspond among the first. I shall afterwards study in the same manner patients attacked with other acute diseases, whether fatally so or not. And having finished this we shall know whether the secondary affections are the same in patients who die, as in those who recover; whether, in this respect, the difference between the two is only in the importance, frequency and variety of the lesions.

I will try to spare the reader even the least view of the labor which I underwent in order to obtain this end. I shall do so by entering into those details merely which seem to me to be indispensable to produce conviction in any person who is unwilling to take results upon the word of an author, and will not admit a proposition to be true, the elements of which are not laid before him.

ARTICLE I.

DIARRHŒA.

I. IN PATIENTS WHO DIED OF THE TYPHOID AFFECTION.

This symptom occurred in all the cases except three. It varied in them in its commencement, degree, nature of the excretions and its seat, which varied much in the extent of surface diseased.

1st. *Commencement.* Out of forty subjects from whom I was able to obtain accurate information in relation to this subject, twenty-two had somewhat frequent and liquid dejections during the first day of the disease. It was decided in the former part of this work that the lesion of the patches of the small intestine was the only constant lesion in individuals who died of the typhoid affection, and the first which commenced. It

is now, likewise, proved by this fact relative to the period at which the diarrhœa began, as I have remarked already in reference to particular observations, that the change in the patches begins with the first symptoms, at least in one half of the patients.

Of the fifteen others, nine began to have diarrhœa between the third and ninth days of the disease, and six between the eleventh and fourteenth. Until that period the dejections were either regular or occurred but seldom, and commonly were excited by enemata.

The three subjects who had no diarrhœa, or in whom the alvine evacuations were of rare occurrence died after thirteen and fourteen days of disease (Obs. 8, 23, 53), therefore we may believe that the copiousness of the diarrhœa was not the chief cause of the somewhat speedily fatal termination of the affection in those cases in which it occurred.

The same consequence results, likewise, from the proportion of cases in which diarrhœa began on the first day of the disease in the principal series of patients. These cases were arranged as follows,

3 out of 8 patients of the first series,					
1	"	4	"	"	second "
11	"	20	"	"	third "
7	"	9	"	"	fourth "

That is to say, *ceteris paribus*, the diarrhœa occurred more frequently at the beginning of the disease in those who died after the thirtieth day than in those who died before.*

* I would remind the reader that the subjects of the first series died between the eighth and fifteenth days, those of the second between the fifteenth and twentieth, those of the third between the twentieth and thirtieth, those of the fourth, after this period. — LOUIS.

It is proper, likewise, to remark that among the subjects who died between the twentieth and thirtieth days of the disease, four had already suffered from diarrhœa during twelve, forty days, and even five months at the time the disease began (Obs. 35, 39, 45). And if I have not considered that the commencement of the disease ought to be referred to an epoch as far back as that at which the diarrhœa began, it is because during the space of time just mentioned, there was no other symptom of the typhoid affection, and because the elliptical patches of the small intestine had not, at the time of death, any of the characters which it would have presented, very probably at least, if the diarrhœa had been the effect of that morbid change at the beginning.

2d. *Degree.* The diarrhœa was severe, moderate or slight, as I will now describe. It was severe in eighteen out of the thirty-two patients in whom its degree was mentioned with exactitude, who had from eight to ten dejections or more during the day; it was moderate in seven who went to the close stool from four to six times during the twenty-four hours; it was slight in a like number who had merely one and two alvine evacuations during the day, rarely more.

The cases of severe diarrhœa were distributed in the following manner.

1 out of 3 patients of the first series,					
1	"	2	"	"	second "
11	"	18	"	"	third "
5	"	9	"	"	fourth "

So that if the origin of the diarrhœa coincided oftener with that of the disease in subjects who died after the twentieth day than among those who died before this time, its

severity was likewise more frequently considerable among the first than among the second.

But whether the diarrhœa was severe or slight, whether or not it commenced with the first symptoms of the disease, it did not remain always at the same degree of violence, but it presented variations in its course in a certain number of cases. It was nearly uniform or increased gradually, and was afterwards stationary in seventeen of them. It diminished in seven out of fifteen others during the second part of its continuance, or during the last seven or eight days of the disease. It, on the contrary, increased much towards the end of the disease in four others. There was nothing decided about it, but it varied continually in the last four.

3d. *Nature of the evacuations.* The fæces generally were very thin, and formed with the urine a somewhat turbid fluid, in which was seen a number of small yellowish bodies, and sometimes, though but rarely, there were more or less solid lumps, save in those cases in which death occurred after thirty days of disease.

Instead of the yellow color, which was the most common, the fæcal matter had a brownish tint more or less resembling that of coffee-grounds, and it had the consistence of these in two patients who died on the twenty-third and twenty-ninth days of the disease (Obs. 24, 29). Two others passed a larger or smaller quantity of pure blood (Obs. 18, 44). And although I examined in a great majority of the cases, and at many different periods, for each patient, the alvine evacuations, I found a little mucus in them in four patients only. We shall, doubtless, be but little astonished at this, if we remember how rare it is to find any in the large intestine at an autopsy.

The cases in which fæcal matter was mixed with pure blood, or those in which it had the aspect and consistence of coffee-grounds are worthy of remark, inasmuch as evacuations of this nature were, almost without exception, never observed in the course of acute diseases, excepting in typhus fever, and because when we may be in doubt as to the nature of any disease, they will contribute very much to make the diagnosis more clear, as we shall see hereafter when treating upon the forty-fourth observation.

The lesions of both intestines had nothing more remarkable in these four cases, than in many others in whom the fæcal matter presented no remarkable appearance.

4th. *Relation of the diarrhœa to the condition of the intestine.* This relation was not always the same, inasmuch as the alteration of the mucous membrane of the intestine went on more or less rapidly from the commencement. At this period, in fact, the elliptical patches were, if not in all, at least in nearly all the cases, the only part of the canal which was diseased, and, consequently, the only part to which the diarrhœa could be referred. And although, at a greater or less time from the beginning of the disease, the mucous membrane between the patches and that of the colon were ordinarily somewhat altered, still they were not always so diseased. Therefore, the diarrhœa arose sometimes from an affection of both intestines ; sometimes of the small intestine merely. This last case was observed in eleven patients, in whom the mucous membrane of the colon had a proper degree of consistence and was almost perfectly healthy, and among them were four in whom diarrhœa was severe from the beginning of the disease. Hence it follows that the length of duration and the severity of the diarrhœa do not indicate with certainty a lesion of the mucous membrane of the large intestine. And excepting

those cases in which there were at the same time pains along the region of the transverse colon, tenesmus and very frequent dejections, I think we cannot affirm that the diarrhœa had its seat exclusively, or, even in part, in the large intestine. The different periods of increase and diminution of the number of the alvine evacuations cannot, likewise, remove the doubts upon this subject, the dejections being sometimes more, sometimes less frequent in the latter periods of the disease than at an earlier time, whether the mucous membrane of the colon were altered or not.

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.*

1st. Out of fifty-seven subjects who had more or less *grave* symptoms, twenty-four had diarrhœa from the commencement of the disease; a somewhat smaller proportion than existed among the patients just treated of. Among the other patients, five had it on the second day, three on the third, four on the fourth, &c. &c. It appeared much later, on the eighteenth and thirtieth days of the disease in two cases.

One of these was that of a subject who experienced during twenty-five days a slight diminution of appetite and strength. In the majority of the last the affection began, likewise in a benignant manner; the patients experienced during a certain time only slight pains in the limbs, a disinclination to work, which was more or less marked, a diminution of appetite, a little fever, so that they were not led to suppose at this period that they were suffering from any thing more than merely a painful weariness with depression of strength (courbature). And of these slight symptoms, which were experienced during a certain space of time by some patients who died, it may be asked

* These patients were eighty-eight in number, fifty-seven of whom experienced severe symptoms, and thirty-one had slight ones. — LOUIS.

whether they indicated the commencement of the typhoid affection, the commencement of the alteration of the elliptical patches of the small intestine, or whether they were independent of it, and ought not rather to be considered as among its precursory symptoms.

Without deciding this question, to which I shall again refer when upon the subject of the latent condition of the typhoid fever, I would remark that the late occurrence of the diarrhœa ought not to be considered a reason for referring to a late period the time at which the disease itself commenced, since three subjects who died did not have diarrhœa, since in those cases in which there was neither diarrhœa nor pains in the abdomen at the commencement, the other symptoms corresponded still better with the alteration of the patches of the ileum than with any other disease, and this is a new reason for admitting the existence of this alteration at this period. I would add that we cannot possibly consider the symptoms, which precede the pains in the abdomen and the diarrhœa similar to those which precede acute eruptions of the skin, in which this course is constant; likewise, without absolutely denying the existence of precursory symptoms we must confess that they are rare. We cannot deny that they exist, since the characteristic symptoms of pneumonia, erysipelas, and of some other affections, easily recognised at their commencement, are preceded during fifteen or twenty hours, and sometimes more in some subjects by general symptoms of which we can give no reason until some time has elapsed.

2d. Considered in its course and degree of severity, the diarrhœa presented many varieties. Ordinarily it was quite slight at its commencement; it became soon afterwards quite a marked symptom in rather a large number of patients; it preserved the same character during a certain time, and dimin-

ished afterwards gradually, or sometimes in a rapid manner; it was generally of long duration, and continued in some patients, forty, fifty and more days, which could not be attributed either to the cinchona, which sometimes was not administered, or to errors of diet in many others. And, as we shall see, there was in the great majority of the individuals a proportion between the length and severity of the diarrhœa.

It was severe, slight or moderate as follows; severe, in fourteen subjects who had from eight to twenty dejections a day, for one or two weeks, and sometimes longer, from the commencement, or a short time after the commencement of the affection; it was slight in twenty-two cases in which there were from two to four dejections in the twenty-four hours; it was moderate in twenty-one others, and in these last two series it lasted a shorter time than in the first.

Its mean term of duration was, in fact, in the majority of the cases, twenty-six days; thirty-three in those in whom it had been severe during a greater or less space of time; twenty-six in those in whom it was moderate in degree; twenty-one in those in whom it was slight, and, doubtless, also there was a proportion between the lesions of the intestine, the severity or slightness of the diarrhœa, as the recovery from disease must have been longer according to its severity.

3d. The character of the evacuations did not differ sensibly from that which was observed in those cases in which the result of the disease was fatal. Nearly all of them were deprived of mucus, and in three patients there was rather a large quantity of blood three, four and six days in succession, and in one of these patients there was some diarrhœa. The blood was clotted in two cases, the dejections very fœtid, blackish, pultaceous, as if formed of decomposed blood, during the last two days of the hæmorrhage, in the case in which it existed

six days. This case was that of a young girl, of a sufficiently strong constitution, who had the gravest symptoms, the most severe meteorism, and whose menstruation had undergone no change before the disease in question. These three subjects had, moreover, suffered from epistaxis, and it had been severe in one of them, which fact seemed to indicate a more or less marked disposition to hæmorrhage, a disposition which we must admit really exists, considering the small number of cases in which the alvine dejections presented the character which we have just noticed. The exhalation of blood commenced at an advanced period of disease in these three subjects, that is, at the seventeenth, twenty-sixth and thirty-second days of disease ; it had gone on slowly in the beginning, and appeared at first but of little importance.

In the subjects (thirty one in number) in whom the *disease was slight*, the diarrhœa was much less severe and shorter than in those we have just examined. It was, in fact, considerable in four cases only, and its mean term of duration was fifteen days only. It commenced also less frequently at the beginning of the disease, or in about a third part of the patients (twelve), and it was not observed in two cases. One only had slightly bloody dejections.

Therefore the length of duration and the severity of the diarrhœa were proportionate to the violence of the disease.

II. IN PATIENTS WHO DIED OF OTHER ACUTE DISEASES.

As the mucous membrane of neither intestine presented any change in any of these subjects, I inferred, in the second part of this work, that this change was accessory, and came on after the commencement of the principal disease. The symptoms confirm what anatomy indicated, and the time at which the diarrhœa commences, enables us, in the majority of cases, to

fix with precision the time at which the lesion of the mucous membrane begins.

It was observed twenty-three times in thirty-five cases of pneumonia, and was proportionably less frequent among those who died before the eleventh day of the disease than among those who died after this period. It commenced a longer or shorter time from the period at which the principal disease began, from two to twelve days before the fatal period. It was generally constant, but sometimes it was slight, and generally in proportion to the alteration of the mucous membrane of both intestines, or to that of the colon, which was the only one affected in some cases.

It was much less frequent, much less severe at the beginning than some days before death, and it was observed in one half only of the subjects who died of acute diseases, of a less inflammatory character than pneumonia. This agrees very well with what we know relative to the lesions of the mucous membrane of the small intestine, lesions which were more frequent and more serious among the pneumonic patients than among those who died of other acute diseases, among whom were some who died of apoplexy, softening of the brain, and in these diarrhœa was very rare.

Moreover, in this case as during the course of the typhoid affection, diarrhœa occurred in some cases (five), in which the mucous membrane of the small intestine was the only one altered. It did not occur in some in whom the mucous membrane of both intestines was softened.

IV. IN PATIENTS WHO RECOVERED FROM OTHER ACUTE DISEASES.

Out of fifty-eight patients affected with pneumonia of different degrees of severity, twenty-one or about one third part, had diarrhœa. It was rarely considerable in amount; it

lasted from five to six days, sometimes more, at others, less, and commenced in the majority of the cases between the fifth and eighth days of the disease, rarely before or after that period. It occurred on the first day of the disease in three individuals who had drunk wine to excess on this same day.

Fifteen out of forty-six individuals attacked with *eruptive diseases* (small-pox, scarlet fever, measles, about an equal number in each) had diarrhœa, and its frequency was very nearly the same in these three kinds of disease. It was slight and lasted but a little while, save in three cases. It commenced between the fourth and sixth days of the disease in the majority of the cases; somewhat frequently, however, on the first (five times). This shows the peculiar tendency of mucous membranes to undergo morbid changes during the course of these diseases, a tendency which, however, the condition of the mouth manifests generally in all, but especially in scarlet fever.

The fourth part of the subjects who had *erysipelas of the face* (ten out of thirty-eight) had diarrhœa. It was commonly slight and lasted from three to ten days, and it commenced between the fourth and the eleventh days of the disease. The treatment, however, had perhaps some influence in producing it in six cases in which it followed the administration of laxatives. This administration of laxatives had, I repeat, *some* influence, because nearly all the patients had taken at one period of the disease slight purgatives, and they were followed by diarrhœa in the six cases only above-mentioned. Therefore we must attribute to them merely an exciting action, and we must allow that in these subjects there was a predisposition which perhaps would have been sufficient, at a little later period, to have caused the diarrhœa even had the laxatives not been administered.

Out of thirty-nine patients affected more or less severely with *angina gutturalis*, four had diarrhœa. It was considerable in three. It began with the disease in one case, on the third day in another, on the seventh in the last two, and continued from eight to fifteen days. It was not in any subject the consequence of the administration of purgatives, which were, nevertheless, administered to nearly all; and this fact comes in support of what I previously stated in relation to the small effect which laxatives have in the production of diarrhœa in patients affected with erysipelas of the face. It is, likewise, perfectly in accordance with what we have seen in the first volume of this work, viz. that secondary lesions are in proportion to the febrile excitement, and this is less in patients affected with angina than in those affected with erysipelas.

Diarrhœa occurred in a fourth part of the cases of *acute rheumatism*, which I observed (eight out of fifty-seven cases). It commenced on the second day of the disease in one of the patients, much later, from the eleventh to the fortieth, in the others, and continued five, fourteen and thirty days; it was considerable in two cases, especially in that in which it was the most obstinate.

Diarrhœa was somewhat less frequent in those attacked with *pulmonary catarrh*. Out of seventy-two, eight, or a ninth part were affected with it. It was moderate in all the cases, so that there were only from three to four dejections during the day. It began between the fifth and eighth days of the disease, rarely later, and continued from one to three weeks.

Out of twenty cases of *urticaria*, *zona*, *erythema marginatum*, one only of these last presented the example of a diarrhœa, which began on the fourteenth day of the disease and lasted fifteen days.

Finally, two subjects, attacked with idiopathic *icterus*, had diarrhœa, either at the commencement or five days afterwards. And there is one fact which is worthy of notice, viz. it was never excited in a single case by laxatives, and some were administered to nearly all the patients once or several times. This is a new proof of what has been stated in regard to erysipelas and angina gutturalis, of the necessity of admitting a predisposition in those cases in which slight purgatives produce diarrhœa, which lasts rather long, and of the absence of this predisposition in those in which there is little or no fever. If these facts seem insufficient to prove this twofold position, at least the last, all question will be removed by the facts relative to subjects attacked with colics from being engaged in working upon metallic substances, to whom emetico-cathartics and drastic purges are administered, the effects of which do not extend beyond the day on which they are administered, so that out of seventy patients, treated by the method pursued at La Charité, one only experienced a slight purging of some days duration.

If now we go from the diarrhœa to the cause which produces it, we must conclude from all that precedes, that the mucous membrane of the intestine is more or less frequently altered in the course of all acute diseases, which have a somewhat febrile character and which terminate favorably; that between these cases and those which are fatal there is no difference save in the degree and frequency of the lesions, which are proportioned to the violence of the febrile movement; that this law of sympathy which the study of the intestine has given us is the same among those who die and those who are cured.

ARTICLE II.

ABDOMINAL PAINS.

I. IN PATIENTS WHO DIED OF THE TYPHOID AFFECTION.

Abdominal pains were observed in different degrees of severity in thirty-nine patients, or rather, in all the cases about which I could learn any thing, whether from the patients or from those who brought them to the hospital. They commenced on the first day of the disease in sixteen individuals, somewhat less frequently than the diarrhœa, and very nearly in the same proportion in the different series into which I have divided my observations. They first appeared on the third day of the disease in three subjects. It was impossible to know any thing about them in the others, which for the most part suffered them only when the abdomen was pressed upon.

Out of the sixteen patients who had pains on the first day of the disease, seven only were attacked with diarrhœa a little later, and as these pains indicate, with scarcely less certainty than the diarrhœa does, a lesion of the mucous membrane of the alimentary canal, as we shall on more than one occasion in this article prove, it results that this membrane was altered at the beginning of the disease in twenty-nine of the forty subjects in whom the time of the commencement of the diarrhœa was noticed with care.

But as I have already stated, it would be difficult not to be led to suppose that such was likewise the fact in the eleven other cases, in which, save the late period at which the disease and pains in the abdomen began, the symptoms were the same, especially when we remember that there was con-

stipation during all the time the disease lasted in three cases, and since the lesions of the intestine, having been latent during the whole course of the disease in these three, must have been so for a still stronger reason during a certain number of days in the others. We must remember, likewise, that in true enteritis diarrhœa does not uniformly occur on the first day of the disease, although the seat of the inflammation is evidently in the one or the other intestine.

In some cases these pains were vague or over the whole of the abdomen (Obs. 2, 36). They were generally in the iliac fossæ, oftener still in the hypogastric region; rarely in the direction of the transverse colon.

Sometimes they were similar to colic pains (Obs. 8, 16, 18, 26, 30, 39, 44), but generally they were dull and without any peculiar character; they were compared to a troublesome burning sensation over the whole abdomen by one patient who was continually wishing to have enemata to calm the irritation (Obs. 31).

The length of time which the pains lasted, save when delirium supervened during their course, was from four to fifteen days. And sometimes after having disappeared a certain time they returned again at several different periods.

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.

Out of fifty-seven in whom the disease was more or less *grave*, five had no pains in the abdomen, and in seventeen, or about one third part, they commenced on the first day of the disease. If we add, as we did a short time since, when speaking of those persons who died, eight of the cases in which there was pain before the diarrhœa, to the twenty-four in which this last symptom commenced with the beginning of the disease, we shall have thirty-two cases out of fifty-seven in which

the affection of the mucous membrane of the small intestine evidently commenced with the disease.

The pains were not always in the same place in all the subjects, and the seat varied even in the same individual. They were rarely general, but occupied commonly the umbilicus, and afterwards the iliac fossæ, where they were discovered only by pressure ; lastly, they were in the hypogastrium.

Their duration varied. They did not continue longer than twenty-four hours in seven subjects ; they lasted a month in six, and from two to eighteen days in the remainder.

Their degree, although generally slight, was exactly in proportion to their duration, and less according as they disappeared more promptly.

It is proper, however, to remark that I had no other means of knowing when the pain commenced, whether on the first day or a little afterwards, except the memory of the patients ; and the recollection of this symptom by persons of the laboring classes, who do not by any means pay special attention to the subject, supposes that it must have been somewhat inconvenient in rather a large number of patients. In this point of view, pain is of more importance than it is supposed to possess generally in the typhoid affection.

Moreover, because it was not felt in some cases, and because it was dull, severe, slight, or of short duration in others, we ought not to be surprised or consider it peculiar to this affection, or to that of the mucous membrane of either intestine, when we consider that inflammation of other mucous membranes brings the same results. I have, likewise, seen quite frequently during the course of the typhoid affection, or angina tonsillaris, the mucous membrane of the velum palati of a bright red color, and evidently inflamed with or without swelling of the parts underneath, and in these cases the patients

complained neither of pain nor of heat in the part, even when I asked them particularly in relation to the point. The tongue, which presents all the symptoms of a more or less acute inflammation somewhat frequently during the course of various acute diseases, is not always by any means painful. In some cases of erysipelas of the face there is either no pain at all, or it is so slight as scarcely to be felt ; in rather a large number it is too unimportant to occupy much the attention of the patients ; and it is not rare to see the disease extend gradually to every part of the body without the patients having been aware of it from the pain they experienced. The same remark applies to the eruptive diseases even to variola, which is not very inconvenient at the extremities of the limbs of the patient, save when the swelling of them has become great. Inflammation of serous membranes even is not always accompanied by pain, and in the cases in which it is felt it is at times so slight, that it would be more apt to obscure than aid the diagnosis, since the examiner might suppose it to be rheumatic. In fact, pain is in the majority of our diseases the least constant of all symptoms, and the least capable of throwing much light upon the diagnosis of diseases, and it ought to hold the least place in their history. But it can, in many cases, fix with precision the commencement of disease, and in this point of view it is of great importance.

Pains in the abdomen were very rare, and occurred less frequently at the commencement of the disease in those cases in which the disease was *slight* than in those of which we have just spoken. They did not occur in ten out of thirty-one of these subjects ; they commenced on the first day in four cases ; they were transitory, and occurred at distant periods of time which varied in length in five cases in which they lasted

from one to three days; they were constant, from three to four days in duration in the others. They were generally at the umbilicus; they occupied in some patients the flanks or hypogastrium, and extended in one of them over the whole of the abdomen. The greater part compared them to colics, and they were of a dull character in one case which was the only one in which, having commenced on the first day of the disease, they continued three weeks accompanied for some time with tenesmus.

The intensity of the pains in the abdomen was then, like the diarrhœa, in proportion to the violence of the affection.

III. IN PATIENTS WHO DIED OF OTHER ACUTE DISEASES.

There were pains in the abdomen in nearly all those who had diarrhœa, and in those alone. They commenced generally at the time the diarrhœa did, sometimes before, at others, afterwards. They were commonly very slight, more slight even than those which occurred during the typhoid affection, which is another proof that if the pains were not severe in the latter disease, we cannot consider it to be owing to the character of the disease.

Thus, they were observed in a quarter of the patients affected with pneumonia; they were transitory in four, and continued from two to twelve days in the remainder. They began from three to eleven days after the principal disease; they were severe in a patient who had gastritis and enteritis; they were accompanied, preceded or followed by diarrhœa in all the cases.

Pains in the abdomen having been observed only among those of the pneumonic patients who were attacked with diarrhœa, it seems to me one must conclude, as I have already stated, that they indicate, not less certainly than the diarrhœa

does, the existence of a lesion of the mucous membrane of the intestine, and as they preceded sometimes the diarrhœa, the inference to be made is, that the affection of the mucous membrane of the intestine commenced often a very short time after the principal disease began. I insist upon this point, for if it was important to detail accurately the lesions of the mucous membrane of the intestine, it is not less important to know at what period of the affection these lesions commenced in the majority of the cases, and how rapid in certain cases the influence of febrile attacks is upon the alimentary canal.

IV. IN PATIENTS WHO RECOVERED FROM OTHER ACUTE DISEASES,

There were pains in the bowels in fourteen out of fifty-eight patients affected with pneumonia, of which I have spoken, that is to say, in a little larger proportion than among those to whom the disease proved fatal ; but they were very slight and lasted from twenty-four to forty-eight hours only. They commenced on the seventh or eighth day of disease in nearly all the cases, and but very rarely after this period ; twice before this time, on the first and fourth, and with a single exception they were observed in those patients only who were attacked with diarrhœa.

In those patients who were affected with *eruptive diseases* the pains in the abdomen pursued very nearly the same course that the diarrhœa did ; they commenced on the fifth or sixth day of the disease in the majority of the cases, or sometimes before that period ; they continued a little longer than among the pneumonic patients, and, if we except one patient, they were felt only by those who had diarrhœa.

The results would be always the same as those I have already given, if I should detail the facts I collected in regard to this point in patients affected with *angina gutturalis*, *erysip-*

elas of the face, rheumatism, pulmonary catarrh, &c., for in all, the pains in the abdomen were in proportion to the diarrhœa. But it is sufficient for me to state that in these cases as in the others, pains in the abdomen rarely occurred save in those who had diarrhœa, and we may conclude that if, during the course of *acute diseases*, pains in the abdomen come on in patients who have not had diarrhœa, we may predict almost with certainty that it will occur.

I would add that pains in the abdomen never failed to occur, save nine times, in eighty-four subjects attacked with *acute enteritis* properly so called. This proportion is but very little different from that which we have observed in the cases in which diarrhœa occurred as a complication merely of some other affection. They commenced, likewise, on the first day of the disease in two thirds of the patients, having most commonly their seat near the umbilicus.

ARTICLE III.

METEORISM.

I. IN PATIENTS WHO DIED OF THE TYPHOID AFFECTION.

Meteorism was observed in thirty-four out of forty-six patients ; it was considerable in half of the cases, and more or less frequent in the various groups of patients we have heretofore studied. I observed it, in fact, in

3 patients out of 10 of the first series,				
5	"	"	7	" second "
19	"	"	20	" third "
5	"	"	9	" fourth "

and in a less severe degree in the first and last series than in two others.

The period at which it commenced was very variable, but it could not be determined with respect to the subjects who died between the eighth and twentieth days of the disease, inasmuch as nearly the whole of those who were affected with it had it at the time of their admission into the hospital, from two to five days before death. As to the patients of the third series, twelve had it to a considerable amount during the last eleven or fifteen days of the disease. It commenced before or after this period in the others, and on the third day of the disease in one of them (Obs. 28). It commenced between the eighth and thirtieth in the subjects of the fourth series.

It continued in the majority of the cases until death, and almost constantly increased in some patients who died between the twentieth and thirtieth days of the disease (Obs. 5, 7, 32, 33). In others, it decreased some time before death (Obs. 17, 27, 28), and in two cases in which it took place only after thirty-eight and sixty-five days of disease, it was momentary only (Obs. 18, 30).

I will not now repeat what I stated in the first volume in regard to the meteorism, that at the autopsy it is nearly always limited to the large intestine, but I would remark that the ordinarily late commencement of this symptom is a new reason for believing that during life, as after death, the large intestine is the principal seat of it; the mucous membrane of this last having been affected only consecutively upon that of the small intestine. I would add, that if it is not possible to find a cause for the meteorism in the condition of the mucous membrane of the colon, we cannot, however, seek for it in decomposition, because the meteorism diminished in many patients during the last days of life, and the effects of decomposition

ought rather to have augmented than diminished in the cases in which the affection was more or less quickly fatal. We cannot, moreover, attribute this phenomenon, at least, solely to an alteration of the blood, inasmuch as this last is common in the course of a great number of diseases in which no meteorism is observed. So that we are led to admit in this case a special cause, and this shows the immense importance of meteorism in the history of the typhoid affection.

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.

Forty out of fifty-seven subjects in whom the affection was *grave* had meteorism, which presented many varieties in its commencement, severity and length of duration. In four patients it commenced on the seventh or eighth day of the disease, in another on the ninth; in thirteen between the tenth and the twelfth; in a majority at a much later period; in some in whom the disease ran its course slowly, it occurred on the twenty-second day, or even later. It was considerable in seven cases, and generally but a short time after its appearance; it was moderate or very slight in the remainder; it alternately increased or diminished during its progress; it diminished in a gradual manner in many individuals; rapidly in others. It lasted usually from four to fifteen days, except in one case in which it ceased at the end of twenty-four hours.

In those in whom the disease was slight the meteorism partook of the mildness of the other symptoms. It occurred in fifteen, or in half of the subjects, and commenced at an advanced period. In fact, I observed it only once on the ninth day of the disease; four times between the twelfth and fourteenth, on the thirty-second in one case, and on the sixtieth in

another patient, whose health was not entirely re-established until ninety-two days after disease began.

III. IN PATIENTS WHO DIED OF OTHER ACUTE DISEASES.

In the same proportion that the meteorism was frequent in individuals attacked with typhus fever, so it was rarely observed in the course of other acute diseases.

Out of eighty subjects, the greater part of whom had diarrhœa, six only had meteorism. Moreover, it was very slight except in two cases (Obs. 51, 52); it lasted generally one or two days, and except in one individual who died of an erysipelas of the lower extremities (Obs. 52), it commenced at a rather late period of disease, not before the ninth day. Three of these subjects died of pneumonia, the fourth of arachnitis, the other two of erysipelas of the extremities, or of a disease of which I could not determine the nature.

IV. IN PATIENTS WHO RECOVERED FROM OTHER ACUTE DISEASES.

Four *pneumonic patients* out of fifty-six had some meteorism during three or four days. Such was the case, likewise, with two out of the forty-six patients attacked with *eruptive diseases*. I did not meet with this symptom in other acute diseases, even in any one of the eighty-six cases of enteritis, properly so called, whether more or less severe. This is an important fact, to which I shall refer at a future period.

Although in the actual state of science I cannot assign any cause for meteorism, I would, nevertheless, remark that it seemed to me to follow a law which was analogous to that by which other symptoms are governed; since, as in those attacked with the typhoid affection, its frequency and force were proportionate to the degree of severity of the principal disease; and among the others those alone had it in whom the

febrile excitement was the most marked ; at least, such was commonly the case.

ARTICLE IV.

GASTRIC SYMPTOMS.

Pains in the Epigastrium ; Nausea ; Vomiting.

I. IN PATIENTS WHO DIED OF THE TYPHOID AFFECTION.

1st. *Pains in the epigastrium.* These pains occurred in fifteen out of twenty-eight subjects from whom I was able to obtain exact information upon the state of the epigastrium. Five experienced pains only when pressure was made upon the spot ; in others they were spontaneous, and were felt then during a space of time which varied from one to twenty days. In five they began at the same time the disease did, and between the eighth and the thirtieth days in the others.

The seat and nature of this symptom it was alike difficult or impossible to determine in certain cases ; for instance, the seat of it in those persons in whom the pain began with the meteorism, for then the colon being somewhat distended, and being in front of the stomach, might have been the source of it ; its seat and likewise its nature in those cases in which the pain having appeared with the first symptoms of the disease the mucous membrane of the stomach being healthy.

This membrane, in fact, presented no remarkable appearance in five subjects who had pains at the epigastrium ; it was more or less altered in the others ; it was mamelonated in four, softened and thinned in three (Obs. 33, 36, 43), ulcerated in two (Obs. 33, 44), softened in the great cul-de-sac only in the last.

Thus, nearly half of the patients had no pains in the epigastrium ; and in a third part of those who had any, the mucous membrane of the stomach presented no remarkable appearance.

Two of the five patients in whom the pain began with the commencement of disease were in these circumstances, therefore we cannot fix the commencement of the change in the mucous membrane of the stomach at this period in the three others.

This first symptom confirms, therefore, much more than it invalidates what has been said in the second part of this work ; namely, that the alterations of the mucous membrane of the stomach are secondary, and do not commence until a more or less advanced period of the disease.

2d. *Nausea*. Thirteen out of the twenty-four subjects whom I asked about this symptom, experienced it ; five, momentarily, at an advanced period of the disease, from the tenth to the thirty-fourth day ; eight, during a space of time which varied from two to twenty-two days, and often from the commencement of the affection.

Its cause was not less uncertain than that of the epigastric pains, in a great number of cases, since the mucous membrane of the stomach was natural in nearly half (ten) of these subjects. Considered alone, therefore, nausea is a very deceptive sign of the condition of the stomach.

The mucous membrane of the stomach was but slightly altered in two cases in which nausea was slight or continued but a short time. Its lesions were serious in two of the five subjects who were in opposite circumstances.

There were both nausea and pains in the epigastrium in eight out of these thirteen subjects, and the mucous membrane of the stomach was altered in four only (Obs. 8, 21, 25, 39), so that we perceive that the appearance of these two symptoms

even at the same time does not diminish the uncertainty of the diagnosis.

3d. *Vomiting*. Twelve out of the twenty-three subjects whom I asked in relation to this symptom, had it at a more or less late period of the disease, between the sixth to the thirtieth day (Obs. 17, 30); five had it momentarily (Obs. 1, 2, 4, 8, 53); six, for a space of time which varied from two to seven days (Obs. 17, 31, 39, 43, 45, 15); the last, during a still longer interval (Obs. 30).

The substance vomited was insipid and nauseous (fade) in three subjects; bitter and greenish in the others, nearly the whole of whom had vomiting many days in succession.

The mucous membrane of the stomach was more or less seriously altered in six of these patients, all of them having had vomiting of bile. It was softened and thinned in two cases in which this vomiting occurred on the last six or seven days of existence.

Thus we see that out of thirty subjects from whom I was able to learn any thing about the gastric symptoms, twenty had vomiting, nausea or pains in the epigastrium, and out of these only eleven had a more or less serious alteration of the mucous membrane of the stomach. Therefore, regarded by itself, each of the gastric symptoms seems to be of little aid in the diagnosis of lesions of the stomach.

But when combined together two and two, they afford a more satisfactory result; not the nausea and the pains in the epigastrium, as I have already stated, but the pains and vomiting of *bile*, for in all the cases (five) in which these two symptoms were united, there was a more or less important change in the mucous membrane of the stomach. Vomiting occurred in these subjects at an advanced period only of disease, during

the last days. Hence we may conclude that if an individual attacked with the typhoid affection has, under these same circumstances, vomiting of *bile* and pains at the epigastrium, we can predict with great certainty that the mucous membrane of the stomach is changed, and more seriously so according as the vomiting has continued a longer time. This result, moreover, is quite conformable with those to which we have been led previously by the study of analogous facts.*

I would remark, moreover, that there is another fact which we shall verify shortly, viz., the relation existing between the vomiting of bile, the pains in the epigastrium, and the alterations in the mucous membrane of the stomach. Out of fifteen patients who had pain in the epigastrium ten had the mucous membrane of the stomach more or less seriously altered, and of these ten five had vomiting of bile; so that by taking two thirds of the first and doubling the second, we arrive always at the same number ten, which expresses that of the patients in whom the mucous membrane of the stomach was more or less diseased *among those who had experienced some gastric symptom.*

Hence we understand how, supposing the proportion the vomiting of bile to the pains in the epigastrium to be the same, or very nearly the same among those who recover, we can as rigorously deduce from it the number of times the mucous membrane of the stomach is altered; at least among those who experience some one of these symptoms.

But how happens it that although the mucous membrane of the stomach was more or less seriously altered in two thirds of the cases, yet the gastric symptoms did not appear oftener,

* Memoir upon softening with thinning of the mucous membrane of the stomach. — LOUIS.

especially connected with one another so as to have something characteristic about them? This latent condition is nothing peculiar to the lesions of the mucous membrane of the stomach, as we must have been convinced already more than once in the preceding observations, and it is easily explained if we remember the facts bearing upon the subject.

The alteration of the mucous membrane of the stomach having not taken place in all the subjects, I have considered it as a secondary or accessory affection, which began at a longer or shorter period after the commencement of the disease. And what anatomy indicates, the symptoms confirm in those cases in which they occurred, since they came on at a late period only, during the last days of disease in the greater number. Some, likewise, had pains in the epigastrium and nausea from the beginning, and the mucous membrane of the stomach was healthy, so that these cases absolutely prove nothing. And we can understand why there may be no gastric symptoms in the majority of the cases when lesions of the stomach begin either during the last days of life, or eight, ten or twelve days after the beginning of the disease, at a period when delirium or profound drowsiness likewise exist, because the effect of the nervous symptoms would be to mask the greater part of others which may exist at the time they come on. There is yet another proof of the accuracy of this view of the subject, viz. the patients who had gastric symptoms were those in whom the disease had been very long, and in these there was either no delirium, or it was slight. Individuals placed in different circumstances, and in whom delirium occurred early in the disease rarely had gastric symptoms.

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.

Forty-three out of fifty-seven individuals in whom the disease was more or less *grave* had some gastric symptoms; thirty, pains in the epigastrium; nineteen, nausea; twenty, vomiting.

1st. *Pains* continued one or two days only in three subjects; they continued from four to sixteen in the others; returned at various times momentarily in some after having ceased for a time; they were experienced only on pressure in four individuals.

Though severe in some cases they were generally very moderate, and produced a sensation of a weight or bar in some patients, in many others merely an unpleasant feeling.

They began on the first day of disease in a fourth part of the cases, a little less frequently than in those who died; they began on the second and third days in two others; afterwards from the sixth to the twenty-fifth.

Calculating the number of cases in which the mucous membrane was altered in these cases by the proportion existing between this alteration and the epigastric pains in those who died, we shall have twenty subjects out of forty-three in whom the mucous membrane of the stomach must have undergone some change more or less serious, and we shall soon see, when speaking of vomiting, that this proportion is doubtless the true one.

2d. *Nausea* appeared at the beginning of the disease in six cases; from the fifth to the thirty-fifth day in the others.

It was momentary and continued one day only in four patients; it continued from three to twenty days in the others, and re-appeared in some cases after having ceased for a certain time.

It was brought on by coughing in two cases ; and disappeared very quickly in another in whom it continued six days, without being accompanied by pain in the epigastrium or vomiting after the administration of an emetic in full dose (*eau bénite* of La Charité). We cannot attribute the nausea in this last case to a gastritis, and we must conclude that among the patients who recover as well among those who die, nausea does not indicate always inflammation of the mucous membrane of the stomach.

It was connected with pains in twelve patients, that is, in a proportion somewhat similar to that which I observed in those cases in which death took place.

3. This parallel, likewise, holds good in regard to the *vomiting*. Excepting three subjects in whom there was vomiting from the first day during two, three and eight days, this symptom appeared only at a remote period from the commencement of the disease, the fifth and sixth days in two cases, from the ninth to the thirty-fifth in the others. It was momentary or did not continue more than one or two days in four patients, and they continued from four to fifteen in the others.

As among the patients who died, the matter vomited was greenish and bitter in the majority of the cases, or in twelve cases out of twenty. Nine of these twelve patients had, likewise, either during the period of vomiting or afterwards, pains in the epigastrium ; and as the mucous membrane of the stomach was more or less seriously affected in those patients who died in whom this connexion of symptoms took place, we must admit that such was likewise the case in these subjects. On the other hand, those individuals who experienced at the same time pains in the epigastrium and vomiting of bile, being only half of those who had the mucous membrane of the stomach

altered (among those who died), we must conclude that this change occurred in eighteen subjects.

This method of calculating, it appears to me, is the more worthy of confidence, as the proportion between the sum of the cases in which there were pains in the epigastrium and those in which there was pains and vomiting of bile is very nearly the same in the two orders of subjects, it being as fifteen to five in those who died ; as thirty to nine in those who recovered, or as three to one.

Admitting as generally true the above result, and supposing that it will be supported by a greater number of facts, it follows that nearly a third part of the subjects who recover from a more or less serious typhoid affection, experience some alteration, either slight or severe, but always appreciable, of the mucous membrane of the stomach.

It is, moreover, infinitely probable, that this lesion was very grave in three cases in which vomiting of bile occurred more or less frequently, six, eight and twelve days in succession.*

* It may seem surprising that when speaking of *particular* cases of gastritis, I make use of doubtful forms of expression; but this affection, upon which the new medical doctrine depends in a great measure, is really one the least known, and about which the fewest positive results have been given, and whose diagnosis is the most obscure. We can, however, understand why science has made so little progress on this point when we perceive that simple gastritis, or at least what is originally simple gastritis, and which causes death, is of very rare occurrence. In fact, I do not think I saw a single case of it during a space of more than six years that I was at La Charité, and during which time I collected the histories of nearly three thousand patients, more than five hundred of whom died. It would, therefore, seem that it has not been observed in dead bodies save when complicated with other affections; and the study of these complications has been very much neglected. It is impossible, therefore, under these circumstances, to recognise any symptoms except those of the most serious lesions, whilst those dependent upon slighter ones inevitably escape our notice; but, nevertheless, it is impossible to know

In those subjects in whom the *affection was slight*, the gastric symptoms followed the same law that the other accessory symptoms did, and were at the same time less frequent, of shorter duration than among those of whom we have just been speaking. They occurred in one half of the cases only, in fifteen out of thirty-one, as follows, pains in the epigastrium in thirteen subjects, and in three of them at the commencement of the disease; nausea in six, and at the beginning in two; vomiting in four. This vomiting, which was momentary in one subject, lasted from two to nine days in the others, and the matter rejected was bitter and greenish in all. It was accompanied or preceded by pain in the epigastrium in two, and this makes, from what has been already said, the number of cases four, in which the mucous membrane of the stomach was more or less changed.

III. IN PATIENTS WHO DIED OF OTHER ACUTE DISEASES.

Out of twenty-four *pneumonic patients* from whom I was able to learn any thing in relation to the point before us, seventeen had gastric symptoms, pains, nausea or vomiting, and the majority had many of these symptoms at a time, and the mu-

the value of symptoms before we compare them with the condition of the organs. It may seem particularly surprising that I have not placed the state of the tongue among the most important means of diagnosis of the condition of the mucous membrane of the stomach, but the reader will soon see why I have forborne to do so. I cannot, moreover, make known in a better manner my doubts in relation to the diagnosis of gastritis than by saying, that though I was upon the point of analyzing two long series of observations, one called cases of acute gastritis, the other gastric embarrassment, (*embarras gastrique*), I gave up my intention, at least for a time, for fear of confounding these two classes, inasmuch as I have no definite idea of the value of that group of symptoms designated by the term "gastric embarrassment." — LOUIS.

cous membrane of the stomach was more or less altered in twelve of them.

Eleven, or about one half, had pains at the epigastrium in the interval of cough, four after the first or second day, the others between the fifth and twelfth. They were momentary in three cases ; from five to twelve days in duration in the others. The mucous membrane of the stomach was more or less seriously altered in seven of these persons.

There was nausea in a third part of the cases, or in eight patients, and this occurred at other times than during accesses of coughing ; from the beginning in three ; at an earlier or later period in the others ; it was momentary in four ; during a space of time which varied from four to ten days in the same number.

Eight patients had vomiting, and six of them vomiting of bile. This vomiting was momentary in two cases, and it recurred several times during the space of two or five days in the others. It commenced with the disease in half of the patients, and in all who vomited bile the mucous membrane of the stomach was more or less altered. It was more seriously so in three who had pains and vomiting of bile than in any others, being softened and thinned in two of them, only softened, but remarkably so, and through its whole extent, in the third.

In this case as in the course of the typhoid affection, the vomiting of *bile* appeared to be the most certain sign of acute affections of the stomach, as nausea was the most unimportant ; in fact, the mucous membrane of the stomach was healthy in nearly all the individuals who had experienced nausea simply during the intervals between the accesses of coughing.

Of three subjects who died of peritonitis, one had vomiting of bile, two, pains in the epigastrium, all had nausea more or less frequently. Vomiting of bile returned frequently, and

obstinately from the first to the twenty-seventh day of the disease which proved fatal on the thirtieth. The membrane was softened and thinned in this case ; it was mamelonated in that in which there were nausea and pains, and natural in the subject who had no nausea. Vomiting of bile is, therefore, of great importance in peritonitis as a sign of an affection of the mucous membrane of the stomach, and if we cannot draw general conclusions from particular facts, at least we may say, what we have already stated, that when vomiting of bile is obstinate in peritonitis we cannot attribute it solely to the principal disease, but we must suspect a more or less serious lesion of the mucous membrane of the stomach.

Three subjects who died of *variola* had pains in the epigastrium, and one had vomiting of a nauseous matter. The pains were momentary on the seventh or eighth days of the disease in two cases, one of which was relative to a patient who had some vomiting, and the mucous membrane of the stomach was mamelonated, more or less greyish in both, but without softening in either. It was red and very much softened in a third who had pains from the first to the seventh day of the disease. Did these depend upon inflammation of the mucous membrane of the stomach ? The affirmative does not seem to me probable, because inflammation of the mucous membrane of the great cul-de-sac, the only one observed, rarely occurs, according to all appearances, save during the latter periods of diseases which prove fatal.*

In two patients who died of *phlegmonous erysipelas* of the lower extremities, and who had experienced no gastric symptoms, the mucous membrane of the stomach was nearly natural.

* "Researches upon Phthisis," pages 67 and 68. — LOUIS.

It was softened and thinned in bands in an individual who died of *softening of the brain* on the sixth day of the disease without pain at the epigastrium or vomiting. These symptoms occurred several times between the first and the fourteenth day of disease in a case of the same kind, in a patient in whom the mucous membrane presented many small ulcerations near the pylorus. No gastric symptom was observed in four other individuals, affected with the same disease, and in whom this membrane was more or less altered. These facts confirm what has been already stated above in relation to the effect of cerebral symptoms upon lesions of the stomach, which they mask in the majority of the cases, and the patient who had vomiting is not an exception to this rule, for there was no delirium until the fourteenth day when the vomiting ceased.

Out of four subjects who died of *acute hydrocephalus* and who had the mucous membrane of the stomach more or less altered, two had gastric symptoms before the delirium; one in whom this mucous membrane was softened and thinned had pains at the epigastrium, nausea and vomiting of bile at a later period of the disease; the other, who died on the ninth day of the disease, had pains and nausea during its course, and the mucous membrane of the stomach had many small ulcerations near the pylorus.

The facts just given when taken together confirm the conclusions already deduced from the history of patients who died of the typhoid fever; like them they show that affections of the mucous membrane of the stomach, which occur during the progress of any acute diseases, are often latent; that pains in the epigastrium connected with vomiting of bile during a certain length of time indicate some grave lesions of the mucous membrane of the stomach; that lesions of this membrane commence generally at an advanced period of the disease;

finally, that pains in the epigastrium do not always indicate an appreciable morbid change in the stomach, and their nature and seat are often difficult to decide upon.

IV. IN PATIENTS WHO RECOVERED FROM OTHER ACUTE DISEASES.

Twenty-three *pneumonic patients* out of fifty-eight experienced some gastric symptoms in the absence of cough ; fifteen had pains in the epigastrium, and ten, vomiting. Whether they were spontaneous or excited by pressure, the pains commenced on the first day in one case ; between the fourth and eighteenth in the others ; they were transitory in seven ; they continued from two to eight days in half of the subjects. There was vomiting of bile in eight individuals, which commenced on the first day of disease in one case, between the second and thirtieth in the others ; it was momentary in four others, and lasted from two to seven days in six. These pains were connected with vomiting of bile in five patients ; that is to say, these five patients had a grave or slight affection of the mucous membrane of the stomach. And from what precedes* we shall obtain the sum of the cases in which this membrane was affected in these individuals, by doubling the number five. The truth of this result becomes still more probable, from the fact, that the number of patients who had pains at the epigastrium is to that of the subjects who had at the same time pains and vomiting of bile as three to one ; a proportion similar to that previously given.

Out of twelve subjects affected with *variola* six had pains at the epigastrium, four, vomiting of bile. The pains lasted but a short time only, from two to five days, and com-

* Page 40 — H. I. B.

menced on the first two days in two cases, between the fifth and eighteenth in the others. The vomiting of bile was momentary, or returned at times during two or three days only, it commenced at the beginning of the disease in one subject; at a later period in the others, and coincided with pains at the epigastrium in two of them. So that the proportion of these cases and the sum of those in which there was pain were very nearly the same as in pneumonia, and we must admit that the mucous membrane of the stomach was altered in four of these cases.

Six subjects out of eighteen affected with *scarlatina* had pains at the epigastrium, and four had vomiting. The pains continued from the first to the fifth day in one case; they commenced between the fourth and eighth in the others; they were transitory in two, and lasted from four to five days in the last three. The vomiting lasted between two and five days, and was bilious in three patients, it commenced with the disease in the case in which it was insipid and nauseous, on the fifth day in the others, one of which was relative to a subject who had at the same time pains in the epigastrium. We must admit that this patient had an affection of the mucous membrane of the stomach at a certain period of the principal affection. Between those who experienced pains only and those who had pains and vomiting of bile likewise, the proportion is not as three to one as in the previous cases, but as six to one. So that, perhaps, it would be less than the truth if we doubled this last number in order to obtain the sum of the cases in which the mucous membrane of the stomach was altered in these subjects.

Out of fourteen subjects affected with *measles*, three had pains at the epigastrium, one only had vomiting of bile. The pains commenced on the first day of the disease in one case,

on the twelfth and fourteenth in the others. They lasted nine days in the first, from three to four in the second and eighth. Vomiting of bile occurred in the beginning and during fifteen days in the patient who had pains at the beginning of the disease. In him the alteration of the mucous membrane of the stomach was doubtless very grave.

Nine out of thirty-seven patients attacked with *erysipelas of the face* had pains in the epigastrium, six, vomiting of bile. Pain commenced on the first day of the disease in four cases, on the fourth in the others, and lasted from four to six days. Vomiting occurred very nearly at the same period; from the beginning in one patient, and lasted during twenty-four hours in four, during five days in the others. It was connected with pains at the epigastrium in four cases. Therefore, calculating upon the data I have taken, the mucous membrane of the stomach must have been more or less altered in six or eight of these individuals. This proportion is greater than that which we observed for those patients who were ill of measles, and it could be explained to a certain point by the difference in the intensity of the febrile action.

Out of thirty-eight cases of *angina gutturalis* nine had pains at the epigastrium, one had vomiting of nauseous and bitter matter alternately. The pains occurred between the third and the seventh days, except in two cases in which they began with the disease. They were transitory or lasted only twenty-four hours in four subjects; they continued from five to ten days in the others. The vomiting of bile was neither accompanied nor preceded by pains in the epigastrium. So that it is impossible to determine the value of this last symptom, or whether the mucous membrane of the stomach was more or less altered in these cases. Nausea occurred in six subjects, but we readily perceive that this symptom, upon

which such little confidence can be placed in other diseases, is much less important in this disease, in relation to the present subject. It is proper, however, to remember what took place in subjects who died of typhoid fever; the mucous membrane was altered in half of the cases in which there was nausea.

Out of fifty-five patients attacked with *rheumatism*, five had pains at the epigastrium, two had vomiting of bile, and two vomited an insipid, nauseous matter. The pains commenced between the ninth and fortieth day of the disease, save in one case in which they began on the first. They were transient in the case in which they appeared at a late period, and continued from three to twenty days in the others. The vomiting of bile coincided with pains in the epigastrium, or appeared but a short time afterwards in two subjects, so that there was a certain proportion between these cases and the whole of those in which there were pains, and we cannot be far from the truth if we admit that the mucous membrane of the stomach was more or less diseased at a certain period of the affection in three or four of these subjects.

Among those who were affected with *pulmonary catarrh*, seven in sixty-nine had at a time when they had not cough, pains at the epigastrium, and nine had vomiting of bile during this same time. The pains commenced on the first or second day of the affection in two cases, at a more or less advanced period of the disease in the others; they were transitory in one of the subjects, and coincided with vomiting of bile in two patients. This seems to show that the mucous membrane of the stomach was more or less affected in four cases. It is important, moreover, to remark, for the sake of truth, that we must not too readily suppose, from the existence of one of these symptoms, that there is inflammation of the mucous membrane of the stomach, for in some of the patients who had

no pains at the epigastrium, the vomiting of bile was prevented by the administration of emetics, and, therefore, as I have already stated, vomiting even of bile is not important as a symptom in the diagnosis of disease, save when it is connected with pains in the epigastrium, or when it occurs in a patient who has suffered from these pains for some time.

Out of twenty-two patients attacked with *urticaria*, *zona*, *erythema*, *marginatum*, three, (one case of each of these affections), had pains at the epigastrium or vomiting of bile. The pains commenced on the second, third and eighth days of the disease, they were slight and continued from three to seven days. The vomiting returned at times during four days, at the same time with pains in the epigastrium in a patient affected with *urticaria*, and in whom the mucous membrane of the stomach was doubtless more or less altered at this period.

A little more than a third part of the patients affected with acute *enteritis*, which was frequently severe (thirty-two in eighty-four), had some gastric symptoms. This is a smaller proportion than that observed in the least severe cases of the typhoid affection in which the diarrhœa was generally so slight. Twenty patients had pains in the epigastrium, seven, vomiting of bile. Pains began on the first days of the affection in six of them, at a more or less advanced period in the others. They were transitory in some cases, and continued from three to twenty days in fifteen. They were lancinating and accompanied with heat in two. They occurred at the same time as vomiting of bile, or they preceded it in six patients. So that we may admit that out of eighty-four more or less severe cases of *enteritis*, there were twelve examples of an affection of the mucous membrane of the stomach consequent upon that of the intestine.

Thus this membrane, like that of the intestine, is affected variously in proportion and degree in the course of all acute febrile diseases, which are more or less inflammatory. Pathological anatomy puts all doubt at rest upon the subject in those who died, and the comparison of the symptoms experienced by those who recovered, with those experienced by persons who died renders the circumstance nearly as certain for the former as the latter. And not only does this comparison demonstrate the fact in a general way, but it indicates, with much precision, the proportion in which the lesion occurs.

It results, likewise, from these facts, that this lesion is less frequent in those who recover than in those who die, and, likewise, that it is less profound; moreover, that its degree and frequency is in proportion to the violence of the febrile excitement, whatever may be the result of the disease. We could obtain a new proof of this fact from what takes place in lead colic, a disease which is generally without fever, and in which we cannot refer the vomiting of bile, which often occurs, to an inflammation of the mucous membrane of the stomach, since emetico-cathartics dissipate it rapidly; the pains in the epigastrium, like those in other parts of the abdomen, are, moreover, often relieved by pressure. Therefore, when there is no febrile excitement, then, likewise, there are no secondary lesions, and we have not even the means of exciting them by energetic medicines, and in proof of this last fact may be again adduced the lead colic, in which the most powerful purgatives do not produce hypercatharsis.

ARTICLE V.

TONGUE ; MOUTH ; POSTERIOR FAUCES.

The anatomical connections of these different parts, and the relation existing in many subjects in their different lesions, induce me to give a history of them in one article. Although new I hope this connection will not appear less natural, and I could not give it up without diminishing greatly the interest which it seems to me is attached to the study of the lesions of each one of the organs in particular.

I. IN PATIENTS WHO DIED OF THE TYPHOID AFFECTION.

1st. *Tongue*. It was almost always natural ; that is, it had not any unnatural redness ; it was moist and was at times only a little yellowish and whitish in nineteen patients ; among whom were all those who died between the eighth and fifteenth days of the disease, and who arrived at the hospital at a sufficiently early period to be examined with care upon this point. It did not cease to have this healthy appearance, and was not dry and thickly coated even during the last days of life save in two of these patients, and in three more who died after the eighth day of disease. The mucous membrane of the stomach was softened and thinned in six of these cases (Obs. 6, 13, 28, 38, 43, 53) ; softened in the great cul-de-sac in two (Obs. 5, 31) ; mamelonated with or without alteration of consistence and thickness in four (Obs. 20, 26, 44, 45) ; ulcerated in another (Obs. 23) ; and it was healthy in the last five (Obs. 2, 4, 8, 11, 35). That is to say, that in most of the cases in which the mucous membrane of the stomach presented the gravest alteration, the tongue was almost always natural, and to the same appearance of this organ correspond-

ed the different kinds of lesions of the mucous membrane of the stomach.

The tongue was almost constantly of a more or less vivid red at its edge, rather often dry at its point and centre in nine patients who died at various periods of the disease. The mucous membrane of the stomach was natural in five of them (Obs. 16, 20, 32, 25, 39) ; softened and thinned in two cases (Obs. 34, 36) ; ulcerated or softened in the great cul-de-sac in two others (Obs. 19, 33).

The tongue had a still more unhealthy aspect, was almost constantly dry and coated, brownish, but rarely of a bright red in eight subjects. In three of these the mucous membrane of the stomach was natural (Obs. 14, 15, 18). This membrane was very slightly mameloned, without any other alteration in one case ; it was more or less generally mameloned in two others (Obs. 1, 2) ; it was softened in the great cul-de-sac in a seventh (Obs. 22) ; softened and thinned in the last.

So that whatever was the condition of the tongue, it did not bear the least relation to that of the stomach, as the same appearance corresponded with a somewhat serious lesion of the mucous membrane in one case, with a perfectly healthy aspect of it in another.

These different conditions of the tongue were not the most remarkable. I found it more or less thickened, cracked or furrowed deeply in three subjects from eight to twenty days before death (Obs. 15, 29, 37), and covered with a pultaceous whitish coat in two more (Obs. 26, 30).

Two of these cases seem to me to be sufficiently interesting to be introduced in this place, and I will now give their histories, commencing with that in which the tongue was seriously ulcerated.

TWENTY-NINTH OBSERVATION.

Diarrhœa; pains in the hypogastrium; redness with thickening of the tongue, which was very deeply furrowed; delirium; drowsiness; meteorism; death on the *twenty-ninth day*. Longitudinal ulceration of tongue extending to the muscular portion of it; patches of the ileum, of a greyish blue color, ulcerated, slightly softened; analogous condition of the mesenteric glands corresponding to the patches; eschar on the sacrum.

A HOUSEWRIGHT, æt. 32, with a large chest and well developed muscles, not very fleshy, was admitted into the hospital of La Charité, May 6th, 1823. He had been at Paris more than two years, and had previously been attached to a marine corps of artillery, and during three successive years he had had, while at Antwerp, quotidian and tertian intermittent fevers, lasting but a short time, and not long afterwards, while at Cherbourg, a quartan intermittent which continued three months. He had been subject to diarrhœa and sore throat for more than two years, and on his arrival at Paris had otitis, which caused a discharge of pus, which dried up three weeks before his entrance into the hospital. He had been ill ten days, and attributed his sickness to excess of labor, which he had undergone during the two weeks previous.

At the beginning he had headache, pains in the limbs, thirst, diminution of the appetite, continuation of the diarrhœa, which he had had already for seven days; skin, moderately hot, sweat in night; pain at the epigastrium. This pain disappeared on the third day; cough came on on the fifth; the other symptoms continued; there was a slight chill every evening, and the dejections were apparently not more frequent than usual.

On 7th, face, but little animated ; answers, slow ; sleep, troubled by dreams as it had been during seven days before ; patient felt very feeble although he was able to walk to the hospital ; tongue, yellowish in centre, a little red at tip, thickened, and having two longitudinal fissures, which were more than a line deep, and from half of an inch to three quarters of an inch long ; the organ was pained by the rubbing of the teeth against it, and this had been the case for four days ; mouth, full of saliva ; amygdalæ, red, not swollen ; thirst, great ; deglutition, easy ; anorexia ; whole abdomen soft and not pained by pressure, save at the left side, where a tumor was felt which extended below the ribs for the space of two inches ; three liquid dejections without colics on this night as on the preceding one ; urine red and burning ; pulse, large and full, at eighty-five ; skin, somewhat hot ; night sweats ; slight chill towards evening of the day previous ; respiration, easy ; respiratory murmur, a little feebler at left than at right. Patient said he had come to the hospital solely on account of the fever and pain in his mouth.

(Orge. sir. tart. three times ; enema of flaxseed tea ; gum potion ; diac).

8th. Face, but little animated ; tongue, a little dry, more painful and thicker than on the preceding day ; less thirst ; eight liquid dejections ; abdomen, not painful on pressure ; skin, very hot ; no sweat.

9th. Aspect, sunken, extreme slowness in giving answers to questions and in his motions ; hearing, dull ; somnolency ; sleep disturbed by dreams ; headache ; rose, lenticular, flattened, ill-defined spots upon the abdomen and chest ; pulse, large, full, having a somewhat double beat, at eighty-four.

(Lemonade, three times ; whey ; flaxseed enema ; cataplasm ; gum potion).

From the 10th to 16th there was slight stupor ; drowsiness, somewhat profound both night and day. On 12th, his aspect was much sunken ; neither headache nor delirium, save during the night of 15th to 16th. The tongue was more or less coated or dry ; its furrows and the lips of patient bled copiously on 15th ; the breath was horribly fœtid, and this last continued so until death. The abdomen was a little meteorised on 14th ; it was pained by pressure in the iliac fossæ on 15th, and the patient had alternately costiveness and diarrhœa. The lenticular spots became more numerous, the pulse much smaller, and always had a double beat in the left wrist ; and this difference continued during life.

On 16th, somnolency ; dejections, not frequent ; pains in the right iliac fossa ; tongue, moist and red anteriorly, blackish behind.

(Barley water sweetened with muriatic acid, twice ; infusion of cinchona with muriatic acid ; potion with wine and syrup of cinchona $\bar{a}\bar{a}$ \S ij. ; aromatic fomentations over abdomen).

Delirium during day and night, especially during that of 18th to 19th. It continued at the morning visit of 19th, and then the features were more altered than before, and his face was bloody, as were likewise his fingers, in consequence of the blood which had flowed from the lips and tongue ; the respiration was embarrassed, and the pulse more frequent than usual.

On 20th, continuation of delirium ; face, pale ; drowsiness, rather more marked ; features very much sunken ; arms trembling on the slightest motion ; constant subsultus tendinum ; patient was on his back, with his knees elevated as usual ; expectoration difficult ; pulse, eighty-five.

(Drinks as already directed ; potion with syrup and wine of cinchona $\bar{a}\bar{a}$ \S ij. and sulphate of quinine grs. xxx. ; aromatic fomentations ; enema of camphorated cinchona.)

From this period, until death took place on 25th in the evening, I observed as follows. Delirium ceased during the day on 21st, and re-appeared only in the evening of 24th; the hearing was somewhat dull; features, changeable; limbs, generally trembling. The tongue was vacillating and alternately moist and dry, at times thickly coated; the pulse was at eighty-eight on 22d, the day on which I perceived an eschar upon the sacrum.

25th. Constant slight agitation of limbs; but patient was still able to aid himself in order to take the bitter potion; his abdomen was much meteorised; pulse, at a hundred and ten, rather vacillating; respiration, somewhat high, thirty-six in a minute. The skin was very hot, and there were much delirium and restlessness until death.

The dose of the sulphate of quinine was on 20th increased to two scruples, and on the next day was still farther increased by a third.

Opening of the corpse thirty-four hours after death.

EXTERIOR. — Joints not stiff. Nine hours after death, while the body was yet lying somewhat warm in bed, the limbs were very stiff.

HEAD. — Numerous opaque granulations on the left side near the longitudinal falx. They were contained in a space of four inches surface, near a portion of the *arachnoid*, which was thick and opaque in this point. There was scarcely a small spoonful of clear serous fluid in either of the lateral *ventricles*. *Pia mater*, slightly injected; *cerebrum*, firm, somewhat spotted with red points; remainder of encephalon, healthy.

MOUTH AND NECK. — On the *tongue* there was a furrow more than an inch long, a line and a half broad, which extended

into the muscular coat. This furrow was in a rather oblique direction. The left *tonsil* was enlarged, and contained a small smooth cavity without opening, in which was a small spoonful of pus of a good quality. Some of the *cervical glands* were red, and larger than natural. The *epiglottis, larynx* and *trachea* had no remarkable appearance about them save some greenish spots.

CHEST. — The *heart* was rather small and soft, and contained like the *aorta*, a little blood. The *aorta* presented various shades of red color throughout its whole extent. There were some cellular adhesions between the *pleura* and *left lung*. This lung and the *right* one were healthy anteriorly, but blackish behind throughout, sufficiently soft and containing a small quantity of frothy blood in this part, where there was no trace of hepatization.

ABDOMEN. — The mucous membrane of the *œsophagus* was covered with its epidermis throughout. The *stomach* was of ordinary size, and contained a small quantity of liquid. Its mucous membrane was covered by a stratum of thin mucus; was of a grey blue color throughout, except in the environs of the *cardia* and *pylorus*; it was of good consistence, and was even a little firmer than natural in the great cul-de-sac, and here it was slightly thickened. The submucous membrane was perfectly healthy. Nothing remarkable in the *duodenum*. The *small intestine* was very much meteorised, and contained in its first half a small quantity of yellow mucus, and in its second some greenish pulpy matter. Its mucous membrane was greyish in some points without redness; it was thin and of a good consistence throughout its whole extent. The *elliptical patches* were very distinct through the whole of the *ileum*. At first they were whitish, afterwards greyish with black, or somewhat

bluish points in them, rarely of a reddish color; they were a little prominent near the cæcum for the space of three feet; they were larger and longer according to their proximity to this intestine; the nearest were three inches long. Four of them were ulcerated over an inch of surface, and the muscular coat was exposed thereby. The edges of this last were, at least, one line thick, and were formed by the mucous membrane and the corresponding submucous cellular membrane, which last was the chief thing that caused the swollen aspect of the patches. The *large intestine* was very much meteorised, and presented many large folds in the epigastric region, and contained a moderate quantity of pultaceous brownish matter in the cæcum. Its mucous membrane was reddish and greyish, a little softened in this last part, where there was a small ulcer by which the submucous cellular tissue had been exposed; it was of a proper thickness and consistence beyond, even in some blackish points of the transverse and descending colon. The *mesenteric glands* were slightly enlarged and of a greyish blue color. The *mesocolic* were in an analogous condition. The *liver* was soft, of a rose color internally, and it was rather difficult to tear it. The *spleen* was of a natural color and consistence, seven inches high and proportionably broad. The other abdominal *viscera* were healthy.

Let us first examine what is most interesting about the tongue, viz. its thickened and ulcerated state. The ulceration was long, narrow and deep, and the muscular coat had been exposed by it. That inflammation was one of its chief causes, the redness and swelling sufficiently proved. Had a similar lesion occurred in any other part of the body, on the skin for example, it would have been considered as of the

same character as many others which occur in the course of acute disease, and no one would have sought for its cause in the mucous membrane of the stomach. But since, from facts given previously, it appears that there is no connection between the condition of the tongue and that of the mucous membrane of the stomach, since the two are frequently in entirely opposite circumstances, we must consider that of the tongue in the present case in the same light as we have viewed all secondary lesions. It is not entirely independent of the principal affection, but it is allied to it by a law common to all organs which, according to the diathesis of the patient, makes one person more or less liable to inflammation of the mucous membrane of the large intestine, another to inflammation of the tongue, and a third to gastritis.

What is true in regard to the inflammation which causes ulceration and thickening of the tongue, is likewise true for that which does not occasion either ulceration or the formation of membranous patches, and which shows itself in simple redness, with or without pricking sensations. Therefore, all the different conditions of the tongue observed during the course of typhoid fever, must be considered as the result of one and the same cause which is common to them with all secondary lesions which come on, like the former, at various periods of the disease. It is, doubtless, in this way that we are able to explain the difference existing between the condition of the tongue in those who died between the eighth and fifteenth days, and the same organ as seen in those who died at a later period. In the former, in fact, the tongue was neither red nor dry save in the latter days, and we have seen in the second part of this work that some secondary lesions, viz. ulcerations of the pharynx, of the œsophagus, partial destruction of the epiglottis, did not occur in the same cases.

These consequences will appear still more natural after the exposition of the facts relative to the condition of the mouth and fauces. But without speaking of previous examples, we have here a partial proof of the analogy existing between the lesions of the tongue and those of the neighboring parts, in the collection of pus which was found in the left tonsil.

The general course of the disease in this case was what it is generally. The first symptoms were those relative to the disturbance of the digestive functions, and the gravest lesions were those nearest the ileo-cæcal valve. The patient who had been subject to diarrhœa had had some during ten days, when pains in the hypogastrium came on, and he lost more or less completely his appetite. Cerebral symptoms supervened soon upon these first symptoms, and ceased during the last four days of life; the meteorism, which had never been very severe, became so during the last days of life, less than twenty-four hours before death. At the autopsy there were found many ulcers in the part of the ileum nearest the cæcum, whose edges were prominent, bluish, with a very slight shade of rose color in some points. The mucous membrane which composed them was very slightly softened; the mesenteric glands, corresponding to them, were of the same color, of a bluish grey tinge, and a little softened. Thus we see that these lesions were exactly similar to those found in cases of the typhoid affection which have lasted a long while, and at length have become stationary, or even have made somewhat of a retrograde course, which was the fact in the present instance.

Now it seems to me to be impossible to decide with certainty, whether the period at which the typhoid affection, or at which the ulceration of the patches of the ileum commenced, was the same with that of the diarrhœa, or whether we must refer it to the time at which the pains in the hypogastrium occurred

In favor of the last supposition it may be urged, that the patient having been very subject to diarrhœa, and this not having been accompanied, before the pains in the hypogastrium commenced, with other symptoms than those which it ordinarily causes, the disease at that period was therefore merely a simple enteritis. In favor of the former supposition, it may be urged that the typhoid affection commences at times very mildly, and that there is no reason why such may not have been the fact in the present case.

It seems to me impossible to explain the cause of death in a satisfactory manner. The lesions of the mucous membrane of the stomach and small intestine were slight; the secondary lesions were so likewise, if we except the eschar upon the sacrum, and whatever effect we may suppose the latter to have had in producing death, it seems to me very difficult to explain it in a very satisfactory manner from the apparent condition of the organs. I would make one remark, which seems to me important, in relation to the meteorism. It was very slight until within twenty-four hours previous to death, when it became very great; now we cannot but admit that in an individual weakened by long suffering, it must have tended to produce a serious trouble in the exercise of all the functions of the body, and have concurred most powerfully in the production of death, and perhaps have been its principal cause.

Let us now examine an observation in which there was a membranous exudation upon the tongue.

THIRTIETH OBSERVATION.

Diarrhœa; diminution of appetite; afterwards, pains in the abdomen; delirium; meteorism; redness and thickening of the tongue, which was covered with a membranous exudation during the latter days of life; death on the *thirty-sixth day*. Elliptical patches of the ileum, red and bluish, somewhat thickened and softened, and upon them there were some small ulcerations; mesenteric glands, enlarged near the cæcum, greyish; lower lobe of the right lung hepatized, &c.

A WATER-carrier, æt. 18, rather tall, of a moderately strong constitution, was brought to the hospital of La Charité, Jan. 30, 1817. He had been at Paris three months and ill twenty-four days, and his father, who had attended to him with great care, gave me the following details of his case. The affection had commenced with pain in the head, thirst, diminution and finally total loss of appetite and diarrhœa. This had continued without interruption afterwards though in a moderate degree; pains in the abdomen, especially in the left hypochondrium, supervened on the sixth day; the headache ceased on the fifth; the patient had not quitted his bed since the tenth, and delirium came on during the three days before his entrance into the hospital; he had had epistaxis at times.

A little rhubarb, administered on the sixth day of the disease, produced vomiting, which occurred several times until entrance, and at times it had been bilious. Emollient enemata had been administered once or twice a day, and diluent drinks ordered. The patient had not been bled, and had not committed any excess.

31st. Patient was lying upon his back, mouth open, eyelids closed; face, purplish; features, not sunken; calmness; somnolency, at times interrupted by deep, low moanings, which were provoked by the slightest touch, and which be-

came in a short time quite intolerable to those around ; they resembled very much those of an animal about to be slaughtered. This noise had been frequent during the night, interrupted by loud groans, during which patient was heard to complain of pain in his head and abdomen. This last was very much meteorised ; he had some involuntary dejections ; his pulse was regular, large, and at a hundred ; the skin was rather hot ; the cough not frequent ; respiratory murmur mingled with sibilant râle ; the tongue was dry and ruddy. No rose colored, lenticular spots.

(Fifteen leeches to right iliac fossa ; ten to umbilicus ; gum water ; two half enemata).

The same symptoms continued during the day ; the drowsiness was constant ; very much blood obtained from the application of the leeches. On the morrow the patient gave no other sign of intelligence than by showing his tongue, which he rarely did save when raised up in bed ; it was dry, brownish, a little thickened, and had a longitudinal fissure in the centre ; the eyelids were kept constantly closed, the pupils moderately dilated ; the other symptoms were the same as on the preceding days.

(Fifteen leeches to each side of the abdomen ; sinapisms to the feet).

From that period until Feb. 12th, when he died, I observed as follows. The patient was constantly uttering loud cries, and this was the case at the visit of 12th, at eight, A. M., half an hour before death took place. He did not recognise his relations either on the 6th or on the following days, and except one answer which he made on 5th in relation to his throat, where he said he was suffering pain, he gave no signs of intelligence. The face became gradually less purple, and its color was natural on 4th ; the neck was stiff, the head thrown backwards on

8th, and this state of things continued almost constantly until death ; the eyelids were almost always closed, the pupils of the same size as before ; the patient was always lying upon his back. The abdomen was pained by pressure, and pressure increased greatly the moaning ; the dejections were not frequent (one or two during the day) and were involuntary ; the deglutition difficult, so that the patient swallowed only one mouthful at a time, and the liquids were frequently thrown back after having been taken into the mouth. The uvula was red, and the tongue, which could be seen only by placing the handle of a spoon between the teeth, was natural at its circumference, blackish in centre. On 6th it was covered with a white, pultaceous, thick, membranous effusion, which covered, likewise, the palate and lips. It was in the same state, only much thicker than before, on 7th. On 10th, this membranous or caseous substance was friable, like dust, as it were. The pulse was very irregular on 6th and 7th, very small and feeble from this time until death, from a hundred and twenty-four to a hundred and thirty pulsations per minute ; the skin was always very hot ; I never observed any rose lenticular spots. The cough was very rare ; the respiratory murmur pure, or without any râle until 8th, and on this day auscultation and percussion when performed with care gave no remarkable result.

On 2d, a pound of ice was ordered for the head and sinapisms for the feet. On 3d, blisters to calves of legs ; on 4th and 8th, leeches to the ears ; on 11th, fomentations of camphorated alcohol.

Opening of the corpse thirty hours after death.

EXTERIOR. — Two small excoriations on the left nates and on the coccyx. Blisters pale, and the skin corresponding to

their centre was very thin; muscles, somewhat pale, firm, rather sticky.

HEAD. — Many opaque granulations in the *arachnoid* along the longitudinal sinus. Considerable serous effusion underneath this membrane; nearly a spoonful of serous fluid in the left lateral *ventricle*; somewhat less in the right one. *Cortical* substance, of a very pale rose color, of a uniform hue; *medullary*, somewhat injected; both, of good consistence. The remainder of the encephalon was healthy.

NECK. — The *tongue* was rather thickened, and presented on its superior face the remains of a pultaceous substance. The *pharynx* was covered by a thick viscid mucus. The *epiglottis* was pale, somewhat thickened at its edge, principally at its upper part, where it was absolutely destroyed for the space of somewhat more than a line, especially at the left side. *Larynx* and *trachea*, natural.

CHEST. — No effusion of serum in the *pericardium*; *heart*, a little less firm than usual. *Aorta*, small, very white, and containing rather a large quantity of blackish blood, some of which was fluid, the rest clotted. General close adhesions between the right lung and corresponding *pleura*; nothing similar at left, which was perfectly free. Some drops of serous fluid in each of the *pleuræ*. The lower lobe of the *right lung* was of a deep red at its posterior part; it was, likewise, heavy, granulated, hepatized, and its vessels were very distinct. The upper lobe was healthy. The *left lung*, at its lower lobe especially, was much softer than natural, but had no appreciable alteration of structure.

ABDOMEN. — *Œsophagus*, perfectly healthy. *Stomach*, of medium size, containing a small quantity of greyish and slightly viscid liquid. Its mucous membrane was yellowish and softened in a small part of the great cul-de-sac; it was

reddish and a little mamelonated and a very little thickened at its posterior face over a considerable space ; it was of good consistence in this same part. The mucous membrane of the *duodenum* was greyish ; the crypts near the part next the valve of the pylorus were much smaller than those found a little farther off. The *small intestine* was of medium size and contained but a little mucus. Its lining membrane was greyish throughout its whole extent ; it was thin and somewhat softened in the ileum, where I obtained strips of from four to five lines only in length. On an elliptical patch of double its usual thickness, of a greyish color, and situated at the beginning of this part of the intestine, I observed an ulceration about a line in diameter. Beyond this part, towards the cæcum, the patches became larger, were nearer one another, and more or less red ; and on four of them there were ulcerations which were but a very little larger than that just described, but they were deeper, inasmuch as the muscular coat had been laid bare by them, and it was a little thickened and reddened.

Between these patches, which were about a millimeter* and a half thick, there were others which were much smaller, of irregular shapes, and some of which were ulcerated, while others were not so, but otherwise they were similar to the former ; there was, likewise, rather a large number of solitary whitish, miliary glands. The *large intestine* was of medium size and contained either pultaceous or moulded faecal matter. Its mucous membrane had a greyish or reddish color, and was a little thicker than natural ; it was very much softened in its first half, throughout which no strips could be raised, but afterwards it gained gradually more firmness on approaching the rectum. Some crypts of a lenticular shape, flattened and

* See note page 9, Vol. I. — H. I. B.

marked with a black point in the centre were found throughout the whole length of the colon. The *mesenteric glands* were enlarged, of a bluish color, and a little softened in the neighborhood of the *cæcum*. The *mesocolic* were very nearly in the same state in the same region. The *liver* was pale, of medium size, ordinary consistence, of a dull aspect in the centre; the bile of the *gall-bladder* was not copious, was very fluid and of a clear yellow color; the *spleen* was of ordinary size, of a dark color and good consistence; the *kidneys* were pale, of a moderate degree of firmness; the other *viscera* were healthy.

The difficulty of seeing the tongue doubtless prevented me from knowing when the exudation, with which it was covered, commenced, and the same cause prevented me, likewise, from learning the color of the mucous membrane at this period. But as it was red previous to this exudation, and as this color is very often, if not always, connected with an inflammatory condition,* and as likewise the tongue was a little thickened, we cannot doubt that it was inflamed. And as we cannot attribute this condition of the tongue to that of the stomach, less on account of the slightness of its lesions than because of the facts previously given, it results that with an appearance but little different from that which is usual, the inflammation of the tongue obeyed the same laws as in the preceding case, laws which govern the lesions of so many other organs during the course of acute diseases.

The dysphagia, which lasted a considerable time, depended, doubtless, upon the condition of the tongue, velum palati and epiglottis, the partial destruction of which is gene-

* "Researches upon Phthisis," pages 345. — Lours

rally accompanied by a greater or less difficulty in deglutition.*

There was no doubt as to the nature of the principal disease during life, inasmuch as all the symptoms of typhus fever arose successively and in their usual order. The first were the diminution of the appetite, the diarrhœa, and the pains in the abdomen; these showed the seat of the disease at its commencement to be in the abdomen, the condition of the elliptical patches and of the mesenteric glands corresponding to them, showed, likewise, that from them had arisen the symptoms, and their color and consistence indicated that for a certain number of days they had been retrograding.

The mucous membrane of the left colon and great cul-de-sac presented but very slight lesions, and it is difficult to account for the pains in the left hypochondrium, unless we attribute them to the spleen, which evidently is the seat of them at times, and admit that its size, having been at one time more or less enlarged, might afterwards have retrograded like the alteration of the patches and mesenteric glands. This view of the subject is, however, merely hypothetical, and is incapable of a more rigid demonstration.

The cause of the peculiar form of the cerebral symptoms cannot be imagined. The ancient pathologists would have made a variety of this form, but the different aspects under which the difficulty in the same function presents itself are of less importance, because the delirium and the majority of the cerebral symptoms may be absent entirely without the character of the disease becoming doubtful; it is always the same.

The inflammation of the right lung did not come on previously to five days before death, for percussion and ausculta-

* “Researches upon Phthisis,” page 244. — LOUIS.

tion performed with care at that period presented nothing remarkable at this examination, and this fact is worthy of notice, inasmuch as it must necessarily have hastened death, and perhaps was the true cause of it. It is true, the softening of the mucous membrane of the large intestine was very great, and it had great influence towards producing a fatal termination of the disease, but how can we know whether this softening commenced before, at the same time, or after the inflammation of the lung began ?

Although the skin, corresponding to the blisters, was thinned, still the tendency to ulceration was very slight in this subject, for after having lain more than twelve days upon his back he had merely a few excoriated spots upon the sacrum, and the elliptical patches were ulcerated but very slightly.

In *conclusion*, the tongue was natural, or nearly so, in a little less than half the subjects, while it presented the signs of a more or less deep or superficial inflammation in nearly all of the others ; sometimes it was of a more or less vivid red hue with or without dryness and thickening, and sometimes with this redness, there was a thick coat, and somewhat deep fissures, a pultaceous or membranous effusion, or considerable thickening of the organ. That is to say, that inflammation of the tongue was as frequent as that of many other organs, and presented itself under forms not less varied.

2d. *Mouth and Fauces.* The difficulty of examining the state of the mouth and posterior fauces was so great in cases of the typhoid affection, that I was often entirely prevented from learning during life any thing in relation to them, and, therefore, I cannot draw any comparison between the condition of these parts and that of the tongue. How-

ever, I will now state what I learned in relation to this point.

Besides the eight cases mentioned in the second part of this work, in which the pharynx was somewhat inflamed, I found the parietes of the mouth and fauces somewhat diseased in six subjects. The pharynx was red and the deglutition was difficult, six days before death, in one case (Obs. 4); one of the tonsils was red and enlarged eighteen days before the same period in another (Obs. 29); the uvula was somewhat red in a fourth (Obs. 30); the velum palati was red and tense a long time before death took place in two subjects, in whom the disease went on very slowly (Obs. 18, 39); and in one of them the palate was thickly coated like the tongue. Finally, the lips, cheeks and roof of the palate became covered with a membranous effusion in two cases in which the tongue was similarly affected.

Connecting these facts with the lesions of the pharynx, to which I just alluded, we shall have, notwithstanding the small number of patients in whom I was able during life to examine the interior of the cheeks and the palate, fourteen examples of more or less serious alterations of the organs forming the parietes of the mouth and fauces, and all of them inflammatory.

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.

1st. *Tongue.* Out of fifty-seven subjects in whom the affection was *grave*, fifteen had the tongue natural, or at least, moist and not redder than natural. It was dry, more or less ruddy for some days in eight individuals; not less brownish and dry in nine others in whom the diarrhœa and gastric symptoms did not differ sensibly from what they were in the former; it was red, dry, fissured and thickly coated in fifteen cases; of a more or less vivid red color, sometimes painful

and always thickened in eight subjects ; more or less covered with a white pultaceous exudation in four others, among whom was found one of those who had it thickened. Finally, it presented some ulcerations in two cases.

In those in whom the tongue was more or less red, thickened and often painful, there was evidently inflammation, and this condition, which began in no subject before the eleventh day of the disease, continued from four to twenty days, that is to say, that it followed exactly the course of all secondary lesions which occur during the progress of fever or other acute diseases which prove fatal. The subject in whom the thickening was most marked was, likewise, that in which the inflammation of the tongue was of the longest duration.

This organ was thickened in one case only of the four in which there was a membranous effusion, as above stated, but in all, the mucous membrane was of a more or less vivid red or bluish color, and this lesion, which lasted only from two to five days, commenced between the twentieth and fiftieth days of the disease.*

The ulcerations were long and somewhat deep in one case ; they did not appear before the fifteenth day, and were cicatrized on the tenth only from the time they began.

Supposing that the tongue was inflamed in those only in whom there was at the same time redness with thickening,

* This late appearance of the membranous exudation upon the tongue is not peculiar to acute affections, but occurs likewise in chronic diseases, as I have shown in another work, and it seems to me to indicate that debility is favorable to the development of many diseases, of inflammation in particular, and that it is almost one of the necessary elements of that inflammation which accompanies a membranous exudation, and we may believe that upon it depends in some measure the tendency which croup shows to attack the young rather than older persons, as in the former debility is much more marked than strength of constitution. — LOUIS.

or in whom it was ulcerated or covered by a membranous effusion, then inflammation must have occurred thirteen times to a remarkable degree, and this proportion is great. But it is less than the truth, for we cannot doubt that it was inflamed in a certain number of patients in whom the tongue was very red, more or less dry and coated, without ulceration or membranous effusion or thickening; because inflammation may be limited to the mucous membrane, as is usual in such cases, and cause no ulceration, and be manifested by pain and redness only, or redness alone.

With regard to the dryness of the tongue, whether this organ was or was not at the same time reddened and thickened, or only of a ruddy hue, that is, whether inflamed or not so, we must regard it merely as a phenomenon analogous to that which the skin presents in febrile affections, in which it is often dry and hot, whether it be inflamed or not. Therefore the dryness of the tongue cannot be the smallest objection to this view of the subject which I have given upon the nature of the different circumstances in which we find it.

2d. *Mouth and Fauces.* Out of thirty-two subjects in whom I examined these parts with care, twenty-one had lesions of one or many of the parts which compose this portion of the body. There was rather a bright redness of the pharynx, and which did not extend beyond it in four patients; there was a similar redness limited to the columnæ of the palate or uvula in seven cases, and combined with increase of size in some cases. The same color extended in ten others to the pharynx, velum palati, amygdalæ or uvula. The amygdalæ were swollen in three cases; the velum in two; the pharynx, over a considerable space, in one; the roof of the palate was covered with rather a large number of whitish pellicles, which were easily separated from it in one subject. In two more

there were ulcerations on the columnæ of the palate and on the lower lips in another.

In connection with these signs of inflammation there were, in nearly all of the cases, pains, pricking sensations, dryness of the throat, and a more or less serious difficulty in swallowing. These painful sensations prevailed, likewise, in some cases after the redness and swelling had disappeared. Others felt a dryness and some pains in the throat, while the parts, apparently the seat of the difficulty, were not at all different from natural. This last fact it is well to remember, inasmuch as it will preserve us from the false deductions to which pain might lead us with regard to the seat and nature of diseases.

These lesions commenced, in the vast majority of the cases, after the tenth day of disease, rarely between the eighth and tenth; I found redness of the velum palati on the sixth day in one patient only. These lesions lasted from two to twenty days, and longer when redness was connected with swelling than when it existed alone.

Between these lesions and those of the tongue there was a perfect analogy. If inflammation of the tongue was sometimes superficial, at others connected with swelling, followed by ulceration, or accompanied by a membranous exudation, such was, likewise, the case with the organs forming the parietes of the mouth and fauces, in a proportion at least as great. And why assign different causes to identically the same lesions, solely because they have not the same seat?

The *tongue* was healthy, or was merely slimy in seventeen out of the thirty-one patients in whom the disease was *slight*. It was, for a short time, dry and ruddy in six, at a more or less advanced period of the disease; it was dry, red, coated or cracked in five cases, and during a space of time which

varied from three to seven days ; it was more or less red and thickened in three patients during a space of time which varied from two to fifteen days.

The *other parts of the mouth and fauces* presented alterations similar to those of the tongue in ten patients, and generally to a degree rather more serious ; sometimes they had a simple redness ; at others, and more commonly, there was swelling connected with the redness. If we except two cases in which the redness was confined to the velum palati and pharynx, it extended to a somewhat large number of organs. In addition to redness, the uvula and velum palati were more or less thickened in two subjects ; the uvula and amygdalæ in a third ; the amygdalæ and pharynx in a fourth ; the uvula and velum palati, its columnæ and the pharynx were somewhat tense in a fifth, in whom there was, likewise, ulceration of one of the columnæ. There was in one case at the same time redness with ulceration of the parietes of the mouth, opposite one of the last molar teeth, and in a seventh, the lower lip was ulcerated.

The redness was transitory in three cases ; it lasted longer, from four to ten days in the others, and according to the degree of the swelling.

Thus the lesions of the tongue, fauces and mouth were the same in the cases which were slight as in those which were severe, only they were less frequent in the former than in the latter ; so that, under whatever point of view we examine them, we find that they seem analogous to one another, and that they follow the same course that the majority of secondary lesions does, viz. they are more severe and more frequent according to the severity of the febrile affection.

III. IN PATIENTS WHO DIED OF OTHER ACUTE DISEASES.

The tongue was natural, or merely yellowish or whitish in sixteen out of thirty-five patients who died of *pneumonia*; it was dry and of a ruddy hue in eight, either throughout the greater part of the course of the disease, when its progress was rapid, or during the last three or five days of existence; it was of a rather bright red color in six cases, at a period which varied from the commencement of the disease, not before the sixth day however; it was red, dry and more or less deeply fissured in four others during the last ten or fifteen days of the disease, or very nearly the second half of the affection. I did not observe thickening in a single case. But on the supposition that there was no omission in this case, (which is probable), the cases in which the tongue was generally more or less red, dry, or moist, furrowed or otherwise for some time, it appears to me, must be considered generally the effect of inflammation. Therefore, if the proportion of those in which the tongue is diseased in pneumonic patients is different from that observed in typhoid patients, still the affection is the same; and the difference depends mostly upon the intensity of the febrile excitement, which is more considerable in diseases known under the name of fevers than in pneumonia.

This difference in proportion serves, however, to show the entire independence of the condition of the tongue upon that of the stomach, the mucous membrane of this last having been as often diseased in pneumonia as in the typhoid affection. For this reason I will not now enter into details which may appear tedious.

As deglutition was almost always easy, and as the examination of the mouth and fauces was moreover difficult in the grave

cases, I made it in three pneumonic patients only, in whom I found the pharynx, uvula and velum palati, either separately or simultaneously, of a more or less vivid red color. This redness commenced between the thirteenth and seventeenth days of the disease, and was accompanied with tension in one patient.

The tongue was examined with care in thirty of the subjects *who died of other acute diseases*, and it was in a remarkable condition in six cases ; it was of a somewhat vivid red color from the third day, in a small-pox patient who died on the thirtieth day of the disease ; it was red and thickly coated from the sixth to the twelfth day in one who died of scarlatina ; after that it was natural ; it was dry, blackish and cracked from the sixth day in a case of peritonitis, in which death occurred on the eleventh ; it was dry, and either coated or not so during nearly the whole course of arachnitis in two subjects, and in a third who died of the same affection, after having been gluey and without other appreciable lesion during fifteen days, it assumed a rather vivid rose hue, and became covered with whitish pellicles on the nineteenth, the day before death took place, as it happens very often in the other organs, the arachnoid, the pleura, which at an autopsy are often found covered by false membranes, whose extreme degree of softness fully proves their recent formation. The mucous membrane of the stomach was not at all altered in this case nor in two others.

It presented nothing very remarkable, and it was covered merely by a slimy coat ; it was not red, it was dry or rarely coated, from two to three days before death in twenty-four other subjects ; so that if it was less frequently altered in the cases of pneumonia than in those of the typhoid affection, it was still so in those of which we have just spoken, and always in proportion to the febrile excitement.

IV. IN PATIENTS WHO RECOVERED FROM OTHER ACUTE DISEASES.

In this class of patients the state of the tongue was not any more in relation with the state of the digestive functions than it was in the previous ones with that of the mucous membrane of the stomach, and as new details would be useless for the confirmation of a fact which seems to me to be sufficiently established, I shall abstain from so doing in nearly all the cases.

The tongue was dry, fissured or coated after the seventh and tenth days of the disease for various intervals of time in three out of the fifty-six pneumonic patients whom I observed ; it was more or less of a bright red color, from eight to ten days, in succession, in two ; it was red and thickened in a sixth, from the fourth to the seventh day of the disease ; it was of a livid red, rather smarting, and covered from the sixth to the tenth day with a white pellicle, composed of the clustering together of an infinite number of miliary white points, easily detached from the surface, in a seventh patient. In the others the tongue was natural or merely covered with a yellowish coat ; it was rarely dry and red, and then only for a short time, two days.

The velum palati and the pharynx were of a more or less vivid red color in two patients, during an interval of from eight to ten days, and there were pricking sensations in both. The roof of the palate was covered by a whitish pellicle caused by the union of a great number of minute whitish points in the case in which the same was observed upon the tongue. Finally, the size of the tonsils was considerable in a fourth patient ; so that the tongue and other parts of the mouth and fauces presented manifest signs of inflammation in the same

number of individuals. I say manifest, because the three cases in which the tongue was dry, fissured or coated were not so evidently examples of inflammation as the four others.

Some patients complained of sore throat, whilst neither the fauces nor the velum palati presented any thing very remarkable.

One *small-pox* patient out of twelve had the tongue more or less red many days in succession. It was dry and thickened in another case in which it had very few pustules. The pharynx was red in two of these patients; the tonsils were more or less red and enlarged in two more.

The tongue was natural in two patients affected with *scarlatina*; of a rather bright red in the others; it was dry and thickly coated in one case from the twelfth to the sixteenth day of the disease; it smarted in two patients; it was swollen in a third and fourth; covered by a white pellicle from the eleventh to the sixteenth day of the disease in a fifth. A similar eruption took place upon the roof of the palate in another case.

The rare occurrence of this kind of false membrane in a class of patients in whom the tongue is almost always inflamed seems to me to be a new proof of the truth of what I said in relation to the influence exerted by debility in its production, because the strength is but slightly diminished during the course of scarlatina.

The tongue had no unusual appearance in six of the fourteen patients who had *measles*. It was somewhat red in the others, dry in three cases, during three or four days from the sixth, eighth and tenth days of disease. The pharynx, velum palati and amygdalæ were somewhat red in ten patients, in one of whom these latter organs were enlarged.

It will, moreover, be remembered how very rare it was to observe any gastric symptoms of any importance, that is, any which may have depended upon a lesion of the mucous membrane of the stomach, in comparison with the cases in which the tongue and parietes of the fauces were evidently inflamed during the course of scarlatina and measles ; and the frequent inflammation of these parts shows sufficiently the peculiar influence of the disease upon its development.

In three quarters of the cases of *erysipelas of the face* the tongue was natural or covered with a yellowish coat more or less thick. In the last quarter, or in nine subjects, it was somewhat red, dry, fissured, coated or thickened. These last two lesions occurred each in two cases. The dryness was preceded or followed by redness in all the patients, and, with the exception of one case in which it continued six days, it lasted not more than twenty-four or forty-eight hours. There were no gastric symptoms in the most remarkable case of this series, that in which the tongue was red and fissured during six days, which was the case of an individual who had violent delirium, and in whom the velum palati and uvula were red and swollen on the thirteenth day of the erysipelas. Slight pains occurred in three other cases, from the first to the eighth day of the disease, in the posterior fauces, which, however, on inspection did not seem diseased. The amygdalæ were red and enlarged in two other subjects. And we may believe, without fear of error, that if the posterior fauces had been examined, as the tongue was, in all the cases, the proportion of those in which the velum and amygdalæ would have been found more or less altered would have been greater.

One reflection naturally presents itself here. What physician is there who, had he examined these facts simply, would not have attributed the different conditions of the tongue

and throat to their proximity to the principal disease? The idea was so simple that it would have presented itself to the mind of the most rigid investigator of the phenomena of nature. But we cannot hold this opinion when we compare the facts with one another; we cannot see in those we have just given in detail anything else than the development of a general law, the effects of which were a little more marked, perhaps, than they would have been if the erysipelas had had its seat in a part somewhat distant.

Moreover, if there is no dependence between the state of the tongue and that of the stomach, neither is there any dependence between the lesions of the first and those of the other parts of the mouth and fauces. It is true, they sometimes occur at the same time in the same patient, but not by any means is this always the case, and when they do co-exist the fact can be attributed only to the influence of a common law which acts at the same time upon many organs. Thus I found the tongue natural, or only whitish, in the majority of the individuals attacked with *angina gutturalis*, which was often severe, so that eight only out of thirty-nine had it more or less red. And this redness was generally slight, and did not last beyond two or five days. It was accompanied with smarting sensations in the two cases in which it was most severe. In another, in which it was also considerable, there was a little dryness, and two small ulcerations on the right side of the tongue on the seventh day of the disease. That is to say, that the slight lesions of this organ, which were more or less of an inflammatory character, were in proportion to the febrile excitement, and this was generally slight and lasted but a short time in angina.

One subject in seven who were affected with *zona* had the tongue red on the twenty-second and twenty-third days of the

disease. Another had pain and redness of the fauces, very nearly at the same period.

The tongue was red, and, for a time, dry in a case of *erythema marginatum* on the eighth and ninth days of the disease, in one out of nine patients affected with it. There was pain in the throat shortly after the commencement in another subject.

The tongue was very dry on the fourth day of an *urticaria* in two out of four individuals who presented examples of it. There was no pain in the throat in a single case.

Except in four out of forty-five subjects affected with *rheumatism*, the tongue was not altered in any attacked with this disease. It was red, dry or moist during three or four days towards the tenth day of the affection in three of the cases. In the fourth subject who had considerable diarrhœa between the fiftieth and seventieth days of the disease, the tongue was red and sometimes dry at the same period. It continued so during six days, and afterwards became the seat of rather troublesome pricking sensations, and of a whitish, pultaceous exudation, which lasted about the same length of time. The same exudation occurred at the same period upon the roof of the palate in the same patient who was in a state of great debility. The velum palati was of a more or less bright red color on the fifteenth and sixteenth days of the disease in two patients. In a fourth the uvula, the velum, columnæ of the palate and the tonsils were of a somewhat bright red color, and swollen from the twelfth to the twenty-third day of the disease. Finally, there occurred pains in the throat without swelling, and without any apparent redness of the fauces in four other subjects, and these I refer to now only in order to give a new proof of the difficulty there is of knowing the nature of pain and of the necessity there is of our remaining in doubt, unless it

occurs combined with some other symptom of a more characteristic nature.

In twelve out of seventy-three patients affected with *pulmonary catarrh*, the tongue was somewhat different from what it is in health, but for a short time only. Thus it was red and dry for twenty-four hours in four patients, between the tenth and twelfth days of the disease; it was red and sufficiently moist in six during a space of from three to ten days; it was almost always dry, ruddy and hot in another, between the fortieth and fiftieth days of the disease; it was red, somewhat thickened and smarting in the twelfth at a much earlier period of the disease. And in the most remarkable cases there were neither gastric symptoms nor diarrhœa. The fauces were the seat of more or less severe pain without any alteration of color or volume of the parts composing them in six subjects. With the pain was connected in five patients a somewhat bright red color of the roof of the mouth, of the velum palati, of the uvula and tonsils, either separately or simultaneously, and in two others there were at the same time redness and swelling of the amygdalæ or velum palati during some days, from the fourth and seventeenth days of the disease.

In this place we may naturally refer to the reflections we made in relation to erysipelas of the face. We might, in truth, suppose that a physician who should have studied the facts in an isolated manner without comparing them with others would have referred them to the peculiarity of the disease. For what could be more natural than to attribute the cough to a slight or severe inflammation of the fauces? But the comparison of facts will not permit us to form this erroneous judgment, and we must draw from the circumstance only one conclusion, viz. that all general deductions, if we want to have

them accurate, must depend upon a great number of facts and upon the comparison of a still greater number.

The tongue was not perfectly healthy in thirteen of eighty-four subjects affected with *enteritis*. It was dry and soft, during two or three days towards the fifteenth of the disease in three cases ; it was more or less red in the others for an uncertain space of time varying from four to thirty days. The dryness was connected with redness in three subjects, and in none was the tongue painful ; it was red and thickened in one subject for some days. It was always healthy in several cases in which there was, moreover, considerable diarrhœa. But if there was no relation between the two there was much between the condition of the tongue and the febrile excitement which, as we shall hereafter see, was slight in enteritis.

Six subjects in whom the fauces presented neither redness nor swelling, had, however, pains in the part for a space of time which varied from seven to eight days, and from the first to the fifteenth day of the disease. Five had a more or less vivid redness of the velum palati, amygdalæ and uvula from seven to fifteen days after the disease began, and for a short time. The commissure of the lips was the seat of some small ulcerations in one case ; the amygdalæ were red and enlarged in two others, on the eighth and twelfth days of enteritis ; the pharynx presented a bright red color in the last. So that in the individuals affected with this disease the parietes of the fauces were more severely and more frequently affected than the tongue.

Finally, this organ presented some diseased appearances in seven out of seventy-eight subjects affected with *colic from working in metals* of whom I learned the histories. There was a little dryness in six cases during twenty-four or thirty-six hours, and almost always before the administration of purga-

tives. In the seventh, the tongue was, during the space of three days, and during treatment, alternately red and moist, dry and smarting, and this case was one of those in which there were delirium and well-marked febrile excitement. The fauces were the seat of some pain in a patient who had nothing else very remarkable in the part.

Although merely negative, the last fact seems to me worthy of notice, and to verify a demonstration which possibly may seem already complete. In truth, at a certain period of the affections studied before colic from metals in relation to this point, the pulse was somewhat accelerated, the skin rather hot, but in this disease, on the contrary, the pulse was calm almost always, the skin of a natural temperature; there were no symptoms of re-action; the disease was always local, confined to its original seat; it had no influence upon the condition of the functions most generally affected, viz. circulation and calorification. In a word there was fever in one series of patients, no fever in the other, so that the result to which we have arrived might have been foreseen. For after having seen heretofore secondary lesions always proportionate to the febrile symptoms, we could not anticipate finding them in an affection which had nothing febrile about it, or at least, we should have anticipated finding but feeble traces of them. This almost complete absence of lesions of the tongue in colic from metals is a new proof of the influence of fever in their production. And the only case in which there was some inflammatory appearance of the tongue fully concludes the demonstration, since it relates to one of the four patients who had delirium, and at the same time somewhat of a febrile excitement.

This long series of facts, it seems to me, is one of the most important of all which have been laid before the reader. In

fact, we cannot any longer doubt as to the influence of febrile affections in the production of more or less serious and frequent morbid changes in our organs ; but if there is no doubt in relation to this point in subjects who have died, it is not, perhaps, equally evident to all with regard to those who have recovered. Especially might the period at which the lesions commenced appear doubtful. But after having followed with the eye the alterations of the mouth and fauces ; after having seen them commence and terminate ; after having ascertained the proportion of the cases in which they are observed, all doubt appears to me to be removed, and we must acknowledge that the secondary lesions in those who recover from acute diseases are the same as in those who die, save in the degree, and that they commence in both at a late period of the disease, usually towards the tenth day. How interesting becomes the study of facts which appear unimportant in themselves, when these facts are numerous and well authenticated !

I will conclude by two remarks in relation to the tongue. 1st. A membranous, pultaceous exudation covering the tongue has been considered as a fatal symptom, and as announcing that death is near, but it is not so, and ought no longer to be considered such, but we must look upon it in the same light that we view all secondary lesions, since, like them, we have seen it occur in subjects who recover and in those who die, and very nearly in equal proportions.* 2d. In the cases in which the tongue had a yellowish coat, somewhat thick, the tongue was not red underneath it, and presented no sign of inflammation. Wherefore we must conclude that the secre-

* Nevertheless, we must not forget that this exudation rarely occurs save in cases of considerable debility, and, consequently, in unfavorable circumstances. — LOUIS.

tions may be more or less seriously altered without the organs which give rise to them being in the least inflamed. This is an important fact since all the organs covered by the mucous membrane being susceptible of the same or analogous lesions, we cannot doubt that diarrhœa generally depends upon some other lesion than inflammation of the mucous membrane of the intestine.

The last consequence of the facts we have now given is this, viz., when there are no cerebral symptoms the tongue must be examined for itself alone, and not as showing the condition of the mucous membrane of the stomach.

ARTICLE VI.

DEGLUTITION.

I. IN PATIENTS WHO DIED OF THE TYPHOID AFFECTION.

Deglutition was difficult, and sometimes remarkably so, in ten of these patients, or in a little more than a fifth part of the cases. This dysphagia, like other secondary symptoms, showed itself at a period more or less distant from the period at which the disease began, four, five, six, seven, nine, seventeen, and in one case, twenty-four days before death, in a patient who died on the twenty-eighth day of the disease. (Obs. 39).

These cases were nearly equally divided among the patients of the four different series, which I have made of the observations collected; they were as follows,

2	out of 10	patients of the first series,
2	“ 7	“ “ second “
4	“ 20	“ “ third “
2	“ 9	“ “ fourth “

It was easy to account for the dysphagia in eight of the patients from the state of the organs, but this was impossible in two in whom the pharynx, œsophagus, the cellular membrane surrounding it and the epiglottis were apparently healthy (Obs. 22, 53). In fact, the interior of the mouth was not examined during life in these two cases, and perhaps there was in them somewhat of an inflammatory redness about it, so that these two facts are by no means conclusive, especially as in one case in which I thought the cause of the dysphagia was evident, there was merely a bright redness in the pharynx, which probably disappeared before death (Obs. 4). In another case the dysphagia must have been owing to the abscess, which formed about the internal parts of the right side of the lower jaw (Obs. 17). It depended in two others upon an effusion of pus into the submucous cellular membrane of the pharynx, or on a membranous inflammation of the mucous membrane itself, and hypertrophy of the muscular coat underneath (Obs. 20, 46). It was caused in the last four by a number of ulcerations in the pharynx or œsophagus (Obs. 32, 39), or in both, (Obs. 31, 34). The partial destruction of the epiglottis and membranous inflammation of the pharynx, as other causes of dysphagia, occurred in the last two cases, and I will now give their histories.

THIRTY-FIRST OBSERVATION.

Fever, anorexia, thirst, pains in the abdomen at the beginning ; afterwards, diarrhœa, which continued to be always slight ; delirium during some days ; dryness of the throat, and soon afterwards dysphagia ; rapid and unexpected death on the *sixteenth day*. Ulcerations in the pharynx and œsophagus ; false membrane upon air passages ; elliptical patches of the ileum, red, softened ; mesenteric glands, corresponding to them, enlarged, softened and of a livid red color.

A GIRL, æt. 23, attendant in a shop, of a moderately strong constitution and rather tall, was brought to the hospital of La Charité, June 12th, 1826, having been then ill during eight days and in bed during three. Her sister, whom I saw on the day after her admission, informed me that she had been at Paris for a year, and without employment for three months before falling ill, that she had suffered much from anxiety of mind in consequence of being unable to procure work, that she had been very much fatigued by walking to find employment, but that she had not suffered from privation of any of the necessaries of life. The disease had commenced with chills, anorexia, thirst, pains in the abdomen, especially in the epigastric region. The chills returned at different times ; the other symptoms continually became more or less severe ; headache had been felt from time to time. Leeches applied to the epigastrium on the day before the entrance of the patient into the hospital had given no relief. The delirium, under which she was laboring at the time of her entrance into the hospital, continued ; she got out of bed during the night and fell upon the floor ; she arose, likewise, shortly before the morning visit on 12th. On this day she was as follows.

Position, natural ; face, of natural color, calm ; eyelids,

closed ; patient kept perfect silence or gave unintelligible answers ; she was ignorant of the place in which she was, and it was only after repeated persuasion that she was induced to show her tongue, which was moist and somewhat villous in its centre, but otherwise natural. The abdomen was soft, rather sonorous on percussion, not pained by pressure ; the pulse was small, feeble, regular, at a hundred and fifty ; the skin was quite hot ; respiration, very much accelerated (forty), not high. No râle heard on auscultation.

(Lemonade ; twenty leeches to the neck).

The delirium was constant and not noisy, but recourse to the straight jacket was found necessary. At the visit of 14th, she had imperfect command of her intellectual faculties, and the same appearance as on the day preceding ; asked for a pair of scissors in order that she might cut the strings by which she was confined ; showed some anxiety in consequence of the length of time her disease had lasted ; she had no pain in her head, but she complained of great *dryness of the throat*. The tongue was a little yellowish behind, but otherwise it was natural ; the abdomen was flat rather than distended, was somewhat pained by pressure in the right iliac region ; the pulse was a hundred and fifty ; the respiration was somewhat less accelerated than on the day preceding.

(Blisters to legs).

The patient was delirious during the night, arose from the bed and endeavored to forcibly remove one of her neighbors from the bed in which she was lying. On the 15th, the features were natural ; her eyes were fixed firmly upon me as if she had some favor to ask of me ; she did not remember having been delirious during the night, but the circumstance did not seem to her to be impossible, for she had had fever ; the

abdomen was a little meteorised and sensible, as on the previous day, to pressure ; two liquid dejections.

She had no dejections during the day, and she got out of bed during the night. On 16th, the features of her face had the aspect of one astonished ; she answered well the questions given to her, and experienced no uncomfortable sensation of heat about the abdomen.

She was somewhat drowsy during the greater part of the day, complained of sore throat and of swallowing with difficulty, and she vomited some mouthfuls of bile. During the night she was constantly complaining and groaning. 17th, slight stupor, exercise of intellectual faculties sufficiently free however ; seemed very grateful to one of her neighbors who attended to her wants ; tongue, not very moist ; she wished for beef-tea ; abdomen, in the same condition as before ; constipation ; pulse, at a hundred and twenty-four.

(Beef-tea).

The mind continued clear ; one fætid dejection during the day, and during the night the patient complained without being able to tell where she was suffering. On 18th, her face was uniformly flushed ; slight drowsiness ; senses, perfect ; aspect, sullen ; tongue, natural at edge, yellowish in centre ; deglutition, difficult, by mouthfuls only ; unpleasant sensation of heat in abdomen. The patient wished to have enemata every half hour, in order to overcome this unpleasant feeling ; the pulse was one hundred and sixteen, regular, rather small ; skin, moderately hot ; respiration, rather frequent.

(Solution of gum-syrup ; two emollient half-enemata).

During the day the patient was calm ; she had two dejections, and manifested still the same feeling of tenderness towards the patient of whom I have already spoken. On

19th, she was less bright than usual; seemed annoyed by something; her hearing was difficult; the abdomen a little meteorised, as it was on the preceding day. She still asked for enemata, experienced a sense of weight at the epigastrium; her pulse was small, feeble and very much accelerated.

(Same prescription).

Excepting that the patient had one more dejection, the day was exactly similar to the preceding. On 20th, increased stupor; intellect, perfect; patient, when asked in relation to her feelings, said she did not feel well.

She died on the same day, at three o'clock, having lost her consciousness only a half hour before death took place. She became generally of a violet hue about twelve; the respiration was not embarrassed until an hour afterwards.

Opening of the corpse forty-one hours after death.

EXTERIOR. — Universal paleness of surface; moderate quantity of flesh, or plumpness; body, well proportioned.

HEAD. — Some miliary, white, opaque granulations in the *arachnoid* near the occiput and median line, in the points where it was opaque and thickened; no effusion under this membrane; no serous fluid in the lateral *ventricles*. *Pia mater*, slightly injected; *cortical* substance, healthy; *medullary* had some few bloody points in it; both were of good consistence. The left lobe of the *cerebellum* was a little less firm than the right one.

NECK. — The *cervical* glands were of a rose color and larger than usual; the *uvula* was of double its usual size, and enveloped in a false membrane half a millimeter thick and of a good consistence. This false membrane extended over a small space upon the *velum palati*, covered $\frac{2}{3}$ the *pharynx*,

where it was interrupted in some spots by ulcerations ; it likewise covered the two faces of the *epiglottis*, and lined the *larynx* and *trachea* to within two inches of its bifurcation. Its consistence and thickness diminished from above downwards, so that in the *trachea* it was very thin and soft, and was not, evidently, at least, adherent to it. The mucous membrane was of a deep red color at its upper part and was spotted with the same color below ; it was evidently thickened and ulcerated in the part which was most red ; the ulcers were oval and vertical. The muscular coat of the *pharynx* had the same red color which the mucous had at its upper part ; it was a line and a half thick and was firmer than natural. The submucous cellular membrane was thickened. The edges of the *glottis* contained a little effused fluid, and were a line and a half thick ; the mucous membrane covering them was of a deep red color, similar to that of the *larynx*, and this color did not disappear after maceration for twenty-four hours. The *trachea* was of a pale rose color at its upper part, of a bright red at the opposite extremity.

CHEST. — *Heart*, healthy, almost entirely deprived of blood, and of a size that was a third less than it usually is. The *aorta* was small throughout its whole extent, being twenty-four lines in diameter at the free edge of the sigmoid valves instead of thirty, which it usually is at this part in a patient of this age. It was otherwise perfectly healthy. There was about an ounce of bloody serous fluid in each one of the *pleuræ*. *Lungs*, free from adhesions. Their lower lobes were of a violet-red color, and on these there were prominent parts in which the substance of the lung, without being splenified, hepatized, or in the first stage of inflammation, was, nevertheless, firmer than anywhere else. There was nothing remarkable throughout the rest of their substance.

ABDOMEN. — The *œsophagus* was deprived of its epidermis throughout a part of its extent. Its mucous membrane near the cardia, to the height of three inches, had a blackish tint without alteration of consistence, and many oval vertical ulcerations, the largest of which was six lines in its longest diameter. The *stomach* was of double its usual size, and contained a moderate quantity of greyish, rather thick fluid. Its mucous membrane was semi-transparent in its two upper thirds, opaque and greyish afterwards, save one yellow spot, which presented nothing remarkable except the color. It was thin in proportion to the enlargement of the stomach, and softened in its great extremity, where it gave strips from one to two lines only in length, rarely three. Except a slight softening of the mucous membrane of the duodenum, it was healthy. The *small intestine* was of medium size and contained little mucus. Its internal membrane was white or yellowish, injected in some points, softened throughout its whole extent, especially near the cæcum, where it gave strips of only one line in length. In the last third of the ileum there was rather a large number of red patches opposite the mesentery, of an irregularly rounded form, not ulcerated, except the one nearest the ileo-cæcal valve. The mucous membrane which formed them, in part, was about a half of a millimeter thick, very much softened, and its crypts were indistinct; the corresponding cellular membrane was of the same color and of double the thickness, and into it was effused a little fluid. The ulcerated patch was an inch and a half from the cæcum, was fifteen lines long, and its ulcerations, four in number, from two to four lines in diameter, had exposed the submucous coat, which was in part destroyed. The corresponding face of the ileo-cæcal valve was rather widely ulcerated, and adherent to the bottom,

of the ulcer there was a yellow substance of considerable firmness. Numerous pale, miliary crypts were seen in the intervals between the patches. The *large intestine* contained a small quantity of greenish, pultaceous, faecal matter. Its mucous membrane was pale save in the rectum, where it had a violet color; it was of a good consistence and thickness in its first half, after which I could raise strips of from four to five lines only. The submucous cellular membrane was perfectly healthy. The *mesenteric glands*, corresponding to the ileum, were enlarged, softened and of a livid red color, especially in the neighborhood of the cæcum, and contained no pus. The *liver* was rather small, pale and soft, and the finger penetrated its substance very easily. The *gall-bladder* contained a moderate quantity of very fluid bile. The *spleen* was twice as large as usual, very much softened and of the color of dregs of wine. The *bladder* was slightly injected, otherwise it was healthy, as were, likewise, all the other *viscera*.

The kind of calmness in which the patient had been was interrupted only three hours before death by signs of suffocation, and this contrast between the mildness of the symptoms and the number and importance of the lesions, is, perhaps, the most striking point in this observation. Nevertheless, it was on the tenth day of a disease which terminated fatally on the sixteenth, during a slight delirium, which soon ceased, that the patient complained of some dryness deep in the throat; two days afterwards deglutition became difficult and excited complaints. It was the same on the next day. Save being a little more stupid than on the preceding day, the patient on the morning of the day she died had no remarkable symptom; there was no change in the voice marking membranous inflammation of the air passages. We were much surprised three

hours before death to see the patient become suddenly of a violet or purplish hue, and at the autopsy we found among other lesions, a false membrane covering the uvula, pharynx and air passages, the mucous membrane of the pharynx, ulcerated, red and thickened, the muscular coat of this organ much thicker than usual, many ulcerations towards the lower part of the œsophagus, and the edge of the glottis swollen from effusion of fluid into it; all this was much more than sufficient to explain the dysphagia.

The œdema of the glottis was, doubtless, very recent at the death of the subject, and dated only, perhaps, from the moment when the purplish aspect of the countenance announced the commencement of suffocation. Perhaps, likewise, the soft false membrane of the trachea and larynx was not older, otherwise we cannot conceive why the voice was not altered when I saw the patient for the last time. But save these two lesions, those of the pharynx, its ulcerations or membranous inflammation were more or less ancient, and dated many days previous to the time of death. There is no doubt about this being the case with the ulcers, which perhaps began at the period when the patient experienced dryness of the throat; this thickness and consistence of the false membrane of the pharynx supposed at least two days of duration; the thickening of the mucous and of the submucous cellular membrane and of the muscular coat of the same organ indicated an inflammation of longer standing. Therefore, it cannot be far from the truth if we place the time at which this threefold lesion commenced at the period when the patient complained of dryness of the throat, and these different alterations of the pharynx probably came on altogether, or at a short period of time from one another; and the dysphagia, (which occurred two days after

the dryness), was, doubtless, the result of the ulcers and the membranous inflammation of the pharynx.

It is but natural that many lesions should pass unnoticed when the patient is in violent delirium, and this we shall see exemplified in the case of the lesions of the pharynx, but it is surprising to find the same to be true, or nearly so, in a patient who had enjoyed the use of her intellectual faculties for several days before death. And this ought to be a reason for us never to neglect the examination of any organ, especially when some alteration of function, however slight, induces us to do so.

It is not necessary to insist much upon the course of the disease, in order to prove that it was the same as that pursued by all those previously given, for the first symptoms could be referred only to the abdomen, and the gravest, and, doubtless, the oldest lesions were those of the ileum, which was ulcerated near the ileo-cæcal valve merely.

For the sake of truth, however, I would make the following remark in relation to ulcerations of the pharynx and œsophagus, viz. that although I have met them only in individuals who died after the fifteenth day of the disease, still, some must naturally be found in those who die before this period, since in the present instance they, without doubt, existed before the fifteenth day.

As to the causes of death, membranous inflammation of the pharynx was evidently the chief one, and we may readily believe, in consequence of the small disease of the elliptical patches of the ileum at the time of death, that without the accessory lesions the termination of the disease would have been favorable.

THIRTY-SECOND OBSERVATION.

Pains in the limbs, dazzling sensations, chills, diarrhœa at the commencement; soon afterwards, meteorism, drowsiness, difficult deglutition, rose-colored lenticular spots; continuation of these symptoms; considerable debility; death on the *twenty-third day*. Ulcerations of one of the columnæ of the velum palati, of the pharynx and œsophagus; partial destruction of the epiglottis; elliptical patches of the ileum, red, softened, ulcerated; perforation of this intestine near the cæcum; mesenteric glands, red, enlarged, softened, &c.

A FEMALE æt. 29, of a moderately strong constitution, who had been at Paris three months, was admitted to the hospital of La Charité, Oct. 9th, 1826. Her catamenia commenced at the age of eleven years, and had never ceased to appear save one year before present disease began, when she became pregnant. Delivery had taken place three months before entrance, with favorable results, and she had suckled her infant until the 8th of October, and had been ill from the 4th. She attributed her disease to great trouble in mind.

At the commencement she was lying during the night in a chamber, the window of which had been left open, when she had a violent chill, pains between the shoulders, headache, dazzling sensations, lassitude of limbs, thirst and diarrhœa. The chills returned many times during the first forty-eight hours; the headache ceased after this period, after which the skin was constantly hot, and the patient slept not at all. The night from the 9th to the 10th was pretty good.

On the morning of the 9th, her face was very nearly of a uniform red hue, but otherwise it was natural, save a slight expression of fatigue; mind, perfect; recital of her sensations well given, simply told; little sleep; pains in the limbs; no headache; considerable debility; tongue, somewhat moist, of

a natural color ; intense thirst ; anorexia ; deglutition, easy ; abdomen, somewhat meteorised, sensible to pressure, especially at the left side of it ; eight liquid dejections during the day ; respiration, moderately accelerated , *mammæ* not pained by pressure, not so large as on the previous day ; pulse, slightly accelerated ; skin, a little hotter than usual ; neither rose-colored lenticular spots nor sudamina.

(Rice water with gum ; half of an emollient enema ; emollient cataplasm.)

The patient was in a very drowsy state during the whole day and very feeble, being unable even to drink unless with assistance, or raise herself in bed. On the 11th, her appearance was the same as on the day previous, except that the appearance of depression of strength was more marked ; she had some buzzing in the ears ; she complained of pain, dryness and unpleasant heat in the throat ; the *deglutition* was difficult ; the thirst was intense ; the abdomen was in the same state as on the 10th. Some rose-colored lenticular spots were seen upon its surface.

Five liquid dejections ; alternations of drowsiness and complaints during the day. On 12th, aspect of one sad and somewhat suffering ; headache ; indifference ; she was not able to sit up in bed without assistance, and fell immediately into the position she previously had, very nearly like an inert body, when the attendant ceased to give her support ; deglutition, more difficult than before ; some pain in the throat although there was no swelling or redness of the fauces ; tongue, greyish in centre, a little redder at the edge than natural ; skin, very hot and dry ; lenticular spots on the abdomen, of a brighter rose color than on the 11th ; pulse, moderately accelerated, without any other remarkable character ; respiration, not frequent, without cough or râle.

The symptoms became a little more severe during the two following days. The patient was almost constantly in a state of drowsiness and complained of not sleeping ; the deglutition was difficult, the thirst was very great ; debility, more marked than usual ; the dejections were from two to five during the twenty-four hours.

On 15th, uneasiness ; pains generally over body, but they were more marked in the abdomen than any where else ; complaints ; the face had the appearance of suffering somewhat ; sore throat ; dysphagia ; pulse, moderately accelerated ; still no cough.

(Bath ; emollient cataplasm ; diet.)

From that time till the 28th, when she died, these symptoms continued and increased ; the drowsiness was almost constant ; the groaning continued ; there was no delirium, save, perhaps, during the last three days, and to a slight degree. The features were almost always the same, save on the day before death, when the face had a strong expression of disgust. The hearing was very dull on 19th ; it became more so afterwards, and the debility was so great after the 20th that the patient being unable to raise herself, had dejections in bed. She did not complain of pains in the throat after this period, after which the thirst appeared less severe than before ; the tongue was yellowish at centre, natural at edges ; it was always moist, somewhat gluey on the 24th only ; the abdomen was constantly somewhat meteorised ; it was more so on the 23d than the other days, and more or less painful. There were from five to eight dejections in the twenty-four hours, and the faecal matter, examined on the 24th, was yellowish and like pea-soup. I observed many rose-colored lenticular spots on the abdomen until the 25th. The skin was always very hot, and generally somewhat moist ; the pulse was somewhat accele-

rated until 25th, after which it became very frequent. There was a slight cough, and on auscultation we heard on the 24th a dry sonorous râle on both sides of the chest in front, and behind, on the right side, a crepitation, as from the bursting of large bubbles.

The patient died at five, A. M., having had some delirium during the evening.

She took every day a tepid bath, without any other appreciable effect than a slight diminution of the abdominal pains. The rice water, fomentations and emollient enemata were continued, and on the 25th, blisters to the legs were prescribed.

Opening of the corpse twenty-eight hours after death.

EXTERIOR. — No dark colored wheals upon the anterior and lateral parts of the trunk; considerable stiffness of body. *Skin*, thickened and of a lilac hue in the parts corresponding to the blisters. The mammæ were enlarged, which enlargement they owed in part to that of the glands themselves, and when cut, the sections presented a great number of orifices whence flowed a yellowish white fluid, of the usual consistence of milk, and in part to another substance, of a pale rose color, firmer than that of the salivary glands, but composed like them of lobules. There were here and there some little masses of fat in the two substances.

HEAD. — The *arachnoid* covering the superior portion of the cerebrum was opaque throughout its whole extent; it was thickened and opaque at the posterior part, over a surface of two inches near the median line, in which there was a great number of miliary granulations, which were not less opaque than the arachnoid. A half spoonful of clear serous fluid was found in each of the *lateral* ventricles, a spoonful and a half in the lower occipital fossæ. *Pia mater*, a little injected. *Cere*

brum, of moderate consistence, a little less firm than the *cerebellum*.

NECK. — Superficial ulceration, destruction over a small extent of the mucous membrane underneath the right amygdala; two similar ulcerations at the left side of the pharynx, on a level with the apex of the epiglottis; two others larger, from four to five lines in diameter, one on each side in the space comprehended between the thyroid and cricoid cartilages, and by them the former and the thyro-arytenoid muscles had been exposed but were not altered. The apex of the epiglottis was entirely destroyed for the space of about two lines, a little more at the left than at the right side. The fibro-cartilage and the mucous membrane had very distinct sharp edges where thus ulcerated, and the mucous membrane was a little thickened about the organ.

CHEST. — Two spoonfuls of serous fluid in the *pericardium*. The *heart* was somewhat softened, and contained rather a large quantity of blood. *Aorta*, healthy. Two ounces of bloody serous fluid in each of the *pleuræ*. The *lungs* were free from adhesions. The lower lobe of the right lung, save some small patches of a bright red hue, was internally and externally of a violet red color; it had an uneven surface, was mamelonated, as it were, externally and at its posterior part; it was, likewise, so heavy as to sink in water. Its substance was somewhat flabby, more resistant than usual, and was not hepatized though it contained no air. Its vessels were capable of being easily recognised by their whitish and bluish color, and contained a moderate quantity of blood. When cut, the surface exposed was immediately covered by a thin stratum of blackish, not frothy fluid, of which but very little could be pressed out after that which flowed spontaneously had been wiped off. The upper lobe of the same side

was of a light red color, in which were many black spots; the substance of the organ was firmer and more elastic than usual. The lower lobe of the left side was similar to the last, except that there were no spots upon it. The *bronchia* were healthy.

ABDOMEN. — The *œsophagus* had an ulcer in its middle part, about four lines in diameter, by which the muscular coat had been exposed. The *small intestine* was meteorised, and covered partly the stomach by its circunvolutions, which were adherent to one another by means of a yellowish membranous exudation, which was found only at the point where they were thus united. There was between the *liver* and the diaphragm and in the pelvis about twelve ounces of yellowish or greyish, thin, turbid liquid, which was much less fœtid than is usual in perforation of the intestine. A perforation was found on the anterior part of the ileum, about a line and a half in size, situated in the centre of a very large ulcer, about an inch in diameter, of a rounded form and very distinct from the adjacent parts, and the peritoneal coat only was remaining except a very little of the cellular membrane, and to this last there was adherent a kind of filamentous tuft or collection of shreds, of a bistre-color, gangrenous odor, and of the size of a large iris-pea (*pois d'iris*.) The rest of the ulcer was twice as large as this, and enveloped two thirds of its circumference, extended to the ileo-cæcal valve, and was itself divided into two parts, in one of which the muscular coat had been exposed; in the other, the cellular membrane. Going from this spot towards the jejunum we discovered twelve more ulcerations in the space of three feet, opposite the mesentery. Two of them had projecting and re-entering angles, the borders of which were more than half a line thick; they were more than two inches large; the others were from ten to forty lines only. All were of the

same structure, and the muscular coat had been exposed by them, and it was greyish, thickened, and from their edges, which were more or less thick and separated from the adjacent parts, floated many small membranous flocculi when the part was put in water. Twenty inches from these ulcers there was an *elliptical patch*, somewhat red and thickened, superficially ulcerated at its centre. The mucous membrane broke easily, or was softened throughout its whole extent, so that it did not have hardly the consistence of mucus. The *stomach* was distended with gases and contained no fluid. Its mucous membrane was of a bright yellow color in the great cul-de-sac and along the small curve, but was greyish in its other parts. It was softened in the first part, especially about the cardia; it was of a proper degree of consistence in its pyloric half, where it was covered by a quantity of viscid mucus; its thickness was in proportion to its distension, save in the pyloric half, where it was somewhat thicker than natural. In the vicinity of the pylorus there was a number of blackish points in the centre of small eminences, which were less grey than the surrounding parts, and no traces of which could be discovered on the part of the membrane adherent to the cellular coat, therefore, we cannot affirm that the points were the orifices of glands. The *large intestine* was of medium size and contained liquid blood in its first third. Its mucous membrane was of a uniform amaranthine red color in the cæcum and in some points of the right colon; it was greyish in other parts, somewhat thickened and soft as mucus, except in the rectum, where it had nearly the consistence and thickness which are natural to it. There were, likewise, in the cæcum twelve oval ulcers, from eight to thirty lines large, by the greater part of which the muscular coat had been exposed, and at a little distance from the lower extremity of the rectum there was another superficial

ulceration, four lines in diameter. The *mesenteric glands* corresponding to the ulcerations of the ileum were enlarged, softened, more or less red, and nearly all of them contained a quantity of pus of good consistence. The *mesocolic glands* were small; the *spleen* was somewhat enlarged and softened. The *liver* was of a proper degree of firmness, of a pale uniform color, and this color was but slightly interrupted internally by some red spots. The *bile* in the gall-bladder was ruddy and very fluid; the *uterus* was of a medium size and greyish throughout; the *ovaries* were an inch and a half in their greatest diameter, and of a soft texture, of a greyish red hue and nearly homogeneous internally. The *fallopian tubes* were enlarged, rather red, containing a moderate quantity of somewhat viscid mucus. The round ligaments were of the same color and were two lines thick.

The number, importance and variety of the lesions in this case will doubtless justify the minuteness of my description of the anatomical details. With respect to the special object of this chapter, I would remark that pain in the throat and dysphagia began on the seventh day of the disease, that they continued in a marked degree during eight days, and that if, at that time, the fauces did not present any remarkable appearance, it was, doubtless, owing to the fact that the ulcerations of the pharynx, or the alterations which preceded them, were out of sight. At least, the course pursued by the pain and dysphagia, and the length of time they lasted, seemed to indicate that they were, at their commencement, the result of a material cause, which must have been that only which we have noticed, in addition to what came on at a certain period afterwards, the partial destruction of the epiglottis.

Because some of the patients affected with the typhoid

fever complain sometimes of pain in the throat and of dysphagia, without our being able to discover any lesion of the pharynx or isthmus of the fauces, we must not thence conclude that these symptoms are the result of a purely nervous influence, and for a still greater reason, because it is possible, as I have remarked already, to explain the dysphagia in eight out of the ten who experienced it, by the serious alteration of the organs of deglutition. It is not less true, that the disappearance of the soreness of the throat and of the dysphagia after lasting some days, even in those cases in which the mind continues perfectly clear, proves nothing against the idea of the existence of the same lesions upon which dysphagia depends in nearly all the cases.

But the most singular point in this case was the perfect calmness with which the patient died, notwithstanding the existence of a cause capable of producing the most serious disturbances in all the functions of the body ; I allude to the perforation of the intestine. The march of the disease was, moreover, regular ; there were pains in the abdomen with diarrhœa at the beginning ; very soon there were great debility, and almost constant drowsiness ; there were some rose-colored, lenticular spots and meteorism. Notwithstanding the absence of delirium, the character of the disease could not be mistaken, and after death there was found, in addition to the lesions of the pharynx, a serious alteration of the mucous membrane of both intestines throughout their whole extent, or nearly so ; there were deep ulcerations in the part of the ileum nearest the cæcum and perforation of the ileum ; now none of these serious lesions were announced by any symptoms ; yet usually these symptoms are very formidable !

Doubtless, it has been observed that perforation of the ileum took place at its anterior face, instead of opposite the

mesentery, as is usually the case, and if this circumstance will not explain in a satisfactory manner why the characteristic symptoms of this lesion did not occur, at least it will explain why the fluid in the peritoneum was less turbid than is usual in a similar case; for the passage of fæcal matter into the peritoneum must have been more difficult than in those subjects in whom the perforation takes place opposite the mesentery.

Although uncommon, the seat of this perforation has nothing in it which ought to surprise us, inasmuch as in the whole, or nearly the whole circumference of the intestine there are in the healthy condition of the parts a number of small patches besides the elliptical patches, and these smaller ones are of irregular shapes, more or less confluent or very near to one another, or having the same structure that the elliptical patches have, like them, are frequently ulcerated, although less seriously so in the majority of the cases. Therefore if it is true to state that the alteration of the elliptical patches is more important according to the proximity to the cæcum, this statement is not rigorously exact save within two or three inches of the ileo-cæcal valve.

If the deglutition was difficult in one subject, without our being able to explain the cause of it, it was much more common to see the pharynx and œsophagus more or less seriously altered without there being any symptom to make us suspect any such alteration. This case happened four times (Obs. 19, 24, 42, 45), and in four more in which the summit of the epiglottis was destroyed to a certain extent, I did not observe any difficulty in deglutition (Obs. 7, 21, 30). These cases, especially the first four, in which the dysphagia ought to have been quite severe in consequence of the gravity of the lesions,

are easily explained by the presence of the delirium which masks all the symptoms, and the easy deglutition before the delirium indicates that the alterations of the pharynx and œsophagus, (ulcerations or effusion of pus) arose only during its course.

There is yet one more important remark. Patients in delirium sometimes refuse to drink, without giving any reason for so doing, and they are found to have more or less serious lesions of the pharynx, as we shall hereafter see an example (Obs. 46), therefore the refusal to drink may indicate the state of the throat and generally of the organs of deglutition.

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.

Out of fifty-seven patients in whom the disease was more or less *grave*, thirteen had difficult deglutition for various intervals of time, from three to six days, at a somewhat advanced period of the disease, not before the sixth day, and in eleven we could readily account for it by the inflammatory condition in which the fauces were. The facts previously given ought to lead us to believe that in the two other subjects the dysphagia had some material cause which was more or less deeply situated in the pharynx or œsophagus. Likewise of the individuals who died, one refused to drink for six successive days, during the time that he was in a violent delirium, and the fauces were not examined.

We see, moreover, from the facts given in the previous article that dysphagia did not occur in all the cases in which the fauces were inflamed, and this may be explained either by the slowness of the inflammation, or by the somnolency, which prevented the patients from perceiving those circumstances which they would have perceived under any other condition.

III. IN PATIENTS AFFECTED WITH OTHER ACUTE DISEASES.

The deglutition was affected but very rarely, and in a transitory manner only, in the patients who died of many of these diseases, and we can readily conceive of the cause, if we remember that the pharynx and œsophagus never presented, at the death of these patients, any of the grave lesions which were seen in those who died of the typhus fever.

As to the subjects who recovered, inasmuch as I have already, in the preceding article, detailed the causes of the dysphagia in them, it will be useless to repeat them again.

ARTICLE VII.

CEREBRAL SYMPTOMS.

Cephalalgia; Somnolency; Delirium; Spasmodic Motions; Strength.

SEC. 1. — Cephalalgia.

I. IN PATIENTS WHO DIED OF THE TYPHOID AFFECTION.

With the exception of four individuals, there was (Obs. 15, 18, 28, 51), in all the patients headache almost constantly, it rarely being confined to the febrile accesses in the evening. It increased gradually in some cases; was uniform in the greater number; it commenced with the first symptoms of disease save in three individuals who experienced none of it, except after the second, third and fourth days (Obs. 5, 6, 21). It ceased when the delirium and somnolency commenced, and this circumstance could not always be attributed to an incomplete perception, inasmuch as many patients *complained* of having pain in various parts of the body at the

same time that they assured me that they had no headache. When the delirium ceased the headache did not return.

The character and degree of the cephalalgia were not always the same. Ordinarily it was heavy or pulsating, or as if something were confining the head, and then it but slightly troubled the patients with a few exceptions only. It was very severe in one female who died on the twelfth day of the disease, so as to make her desire death; it was, likewise, most severe two days before death, and the brain was natural (Obs. 8).

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.

Two subjects out of fifty-seven in whom the disease was severe had no pain in the head, and if we except eight of them in whom it began between the third and twelfth day of the disease, it occurred with the first symptoms of the disease. It lasted usually from eight to ten days; its extremes of duration were from four to twenty. It ceased almost constantly two or three days before the admission of the patients into the hospital, when the drowsiness began, or some days before that period. Its character, its degree, its gradual course, or stationary character, its constancy, and its exasperations were the same as in the cases which terminated fatally. Three times I saw it disappear, or diminish evidently on the fifth day of its occurrence after venesection from the foot.

Headache occurred in all the thirty subjects in whom the disease was *slight* save one; three of them had it only from five to six days after the commencement of the disease; it was considerable in one case merely, and on the first day of the disease only.

III. IN PATIENTS WHO DIED OF OTHER ACUTE DISEASES.

Headache occurred in only half of them, and it was a little more frequent among the pneumonic patients than in individuals attacked with other diseases. It was less intense and not of so long a duration as in the course of the typhoid affection.

IV. IN PATIENTS WHO RECOVERED FROM OTHER ACUTE DISEASES.

Eight patients affected with *pneumonia* out of fifty-seven did not have headache ; it commenced at the beginning of the disease in the others, and did not continue beyond eight days.

Eleven patients out of twelve affected with *small-pox* experienced it from the commencement of the disease, and the mean length of time it lasted was six days.

It was not observed in five cases out of nineteen of *scarlatina* ; it was always slight, commenced with the first day of the disease, with two exceptions, and lasted generally from six to seven days.

In three of the thirteen cases of *measles* there was no headache. It manifested itself with the first symptoms of the disease in two thirds of the cases ; it was slight in all of them.

It was rarely severe in the subjects affected with *angina gutturalis*, but it was absent in four only out of thirty-seven, and took place almost constantly towards the commencement of the disease, and it usually lasted five days.

I observed it in only a third part of the cases of *rheumatism*. Ordinarily it lasted but a short time, and in some patients longer than in the preceding diseases.

Out of seventy-two affected with *pulmonary catarrh* four only had no cephalalgia, but it was observed in a great num-

ber only during the accesses of cough. It commenced in twenty-four between the fourth and twentieth days of disease.

Twenty-eight out of eighty-four affected with *enteritis* had no pain in the head, whether the disease was slight or severe. This pain in the head commenced at a distant period from the first appearance of the symptoms in fifteen cases. Thus with respect to the headache we find a remarkable difference between the slightest kind of the typhoid affection and enteritis, properly so called. But in these affections as in the others, there was a constant proportion between the degree of febrile excitement, the frequency and the intensity of the cephalalgia.

What occurs in the cases of *colica pictonum* agrees with this statement, and proves that this proportion is a law. Thirteen, or only a sixth part of the subjects who were affected with it, had headache during two or three days almost constantly in a slight degree, and at a period more or less remote from the commencement of the affection. The rare occurrence of headache during the course of a disease so painful can hardly be explained, as it seems to me, save by the absence of fever.

SEC. 2. — Somnolency.

I. IN PATIENTS WHO DIED OF THE TYPHOID AFFECTION.

It occurred in all the cases except five, or in eight ninths of the patients (Obs. 2, 8, 12, 24, 44), and presented great variety in regard to the time of commencement, intensity and length of continuance.

It commenced on the first day of the disease in four patients who died on the twenty-first, twenty-second and twenty-eighth days of the disease (Obs. 1, 7, 21, 39); between the third

and sixth in five others (Obs. 2, 8, 12, 24, 44), at a later period, and, with one exception, always before the delirium in the remainder of the individuals.

It was slight at its commencement in all the cases, even in the severest; it continued so during the whole disease in a small number of patients; it became soon quite severe in the majority, so that we were able to uncover the chest of many of them, feel of the pulse, auscult them, speak to them in a very loud voice without awakening them.

When once it had commenced it continued uninterruptedly, save during the moments of delirium, until death, so that, in fact, it ceased from four to fifteen days before this period in seven patients only, nearly all of whom died after the thirtieth day (Obs. 15, 16, 17, 18, 28, 34, 43).

When in this condition the exercise of the intellectual faculties was very slow; the patients were very ill-disposed to being aroused by conversation, &c.; many of them when questioned a little while showed marks of ill-humor, and when the drowsiness was considerable they fell immediately into a state of somnolency when the questions ceased. They disregarded every thing that was going on around them, and this was particularly remarkable in a number of females, who lost all sense of modesty, and suffered the chest and abdomen to be uncovered without making any opposition. At this time, likewise, the face was without expression, the features perfectly quiet; there was stupor in half of the cases.

The following observation is one in which this symptom showed itself in its most marked degree.

THIRTY-THIRD OBSERVATION.

Constipation; diminution of the appetite; pains in the limbs; afterwards, diarrhœa, heat, chill, slight delirium; drowsiness, which gradually became more severe; considerable meteorism; death on the *twenty-eighth day*. Brain, healthy; mucous membrane of the stomach, softened, red and ulcerated; many hard elliptical patches in the ileum, some ulcerated, others not so; mesenteric glands, corresponding to them, of a violet-red color, enlarged and softened; kidneys, spleen, liver, softened, &c.

A LOCKSMITH, æt. 27, of a small but full and strongly made form, with black hair, and well-colored skin, muscles well developed, was admitted into the hospital of La Charité, July 21st, 1823. He had been at Paris seven months, and had been poorly provided with food during the first four in consequence of having no work. He said he had been ill fifteen days, and had continued to labor until July 18th. He said he had had, ten years before this period, a grave disease with delirium, of which he did not remember a single other symptom.

At the commencement, headache, pains in the loins, diminution of the appetite, constipation. These symptoms continued, and pains in the abdomen came on afterwards during the last four days. At the same period there was complete anorexia, and the constipation gave way to diarrhœa, which came on in consequence of a very warm decoction having been given to the patient by an apothecary; he had night sweats and slight chills in the evening. The sleep was always very good, and the giddiness which had preceded the disease fifteen days had not sensibly increased afterwards. The patient had continued to eat a little meat every day until the 18th

without being incommoded by it, and half a bottle of wine taken the day before the entrance of the patient into the hospital appeared to increase the diarrhœa, without exciting pains in the epigastrium or nausea.

On 22d, face, a little flushed, otherwise natural ; sleep, quiet ; slight pains in the loins and in the lower extremities ; tongue, somewhat red at the circumference, villous and yellowish in centre, very moist ; great thirst ; anorexia but no loathing ; epigastrium, but slightly sensible to pressure ; at least twelve dejections during the night without any colic pains ; some clear sputa and a little cough for four days ; dry, sonorous râle during inspiration ; pulse, regular, sufficiently large, at eighty-eight ; skin, manifestly hot ; slight sweat ; patient complained of debility, and asked only to have the diarrhœa stopped.

(Tisan of sweetened barley water ; flaxseed enema, three times.)

Four dejections during the day and a little delirium during the night. On 23d, at the time of visit, he did not remember the fact of his having been delirious, expressed much fear in relation to the issue of his disease, and about the effect of the venesection which was ordered ; his tongue was less moist than on the preceding day ; there was no other change.

(Venesection to $\frac{3}{4}$ x. ; sweetened barley water ; enema of flaxseed tea).

The blood was not cupped, but it was covered with a semi-transparent buff, rather thick, not very firm. Constant drowsiness during the day ; delirium and agitation during the night.

On 24th, there was nothing remarkable about the features ; the tongue was dry ; abdomen, meteorised, not painful on pressure ; the pulse was at ninety-six, sometimes intermittent ; skin, hot and dry.

(Fifteen leeches to the anus.)

Considerable drowsiness during the day and delirium very nearly as on the preceding evening during the night. On 25th, slight stupor ; deafness ; patient did not remember where the leeches were applied ; tongue and abdomen as on preceding day.

(Whey ; emollient enema ; blister.)

On 26th and 27th, constant and continually increasing drowsiness ; delirium during the night ; appearance of countenance abstracted ; some incoherent remarks at the hour of visit ; pulse, regular, at ninety-eight ; eyes, very slightly injected ; pains in the blisters ; dryness of the tongue and meteorism to the same degree as before.

(Twelve leeches to the ears on 27th.)

No amelioration followed the loss of blood, which was somewhat copious. On 28th, the patient could no longer be aroused so much had the somnolency increased ; the pulse had a double beat ; was trembling, at a hundred and eight ; the tongue was somewhat less dry than on the preceding day ; the abdomen much meteorised ; the dejections were few in number, the rose-colored lenticular spots were observed to be more numerous than on the 26th, and the debility was quite marked.

(Ice upon head ; sinapisms upon the lower extremities.)

Ice was, likewise, prescribed on the next day without the least success. On 30th, at the hour of visit, we could with great difficulty only obtain some monosyllables from the patient ; we could uncover him, auscult his chest without disturbing his drowsiness ; the tongue was dry and red anteriorly, coated behind ; the abdomen was very much meteorised ; the pulse was small, regular, at a hundred and sixteen ; the skin was very hot ; the respiration, frequent.

(Lemonade, twice ; whey ; four pounds of ice upon head ; powder of cinchona upon blisters.)

During the evening, after the ice had melted, the face was very red, the drowsiness still very great ; the skin was intensely hot, and the pulse extremely soft. On the 31st, the face was somewhat bloated ; the patient made some ineffectual endeavors to speak ; dysphagia ; large sudamina upon neck ; lenticular rose spots on abdomen larger than before ; a little sonorous or mucous râle on both sides of the chest ; constant moaning.

(Enema of camphorated camomile tea.)

Involuntary dejections during the day, and on the next there was a little muco-subcrepitous râle at the bottom of the left side of the chest ; abdomen, still very much meteorised, somewhat sensible to pressure on the left side ; pulse and drowsiness as before.

As the symptoms continued the same, Aug. 2d, on that day a blister for the neck was ordered, and a potion with 3 ss. of extract of cinchona.

By mistake the patient took a purgative mixture, which had been ordered for a painter, and had in consequence of it five dejections without vomiting. On 3d, skin very intensely hot ; sudamina, of enormous size, like drops of water ; the patient had perspired much on the preceding day, and he died at four, P. M.

Opening of the corpse nineteen hours after death.

EXTERIOR. — Considerable meteorism ; partial destruction of the skin where the blisters had been applied to the legs ; thickening of the same in the parts which were not ulcerated.

HEAD. — Little blood and a good deal of air in the cerebral veins ; membrane under the *arachnoid* very slightly

injected ; a small spoonful of serous fluid in the *lateral* ventricles ; the mass of the brain was slightly injected, and of a good consistence.

NECK. — *Trachea*, red as if from maceration.

CHEST. — The *heart* was of a pale red color, very soft and easily penetrated. The *aorta* was very red internally, and contained some clots of blackish blood ; its own substance was red, although but slightly so, through half of its thickness. No effusion of serous fluid into the *pericardium*. The *lungs* were enlarged somewhat, congested behind, but otherwise they were healthy.

ABDOMEN. — The abdominal cavity contained no air, but the intestine, being very much distended, pressed out through the incisions made in the parietes of the abdomen. The *stomach* was of double its usual size and contained a moderate quantity of a brownish fluid, in which was a great number of small blackish bodies, part of which were floating loosely in the liquid, while the remainder continued attached to a thick viscid mucus which lined its pyloric portion. This membrane was brown and very much softened, without any increase of thickness in the great cul-de-sac ; it was of a rose color, was much less soft in other parts where there was a great number of small superficial ulcers. In the *duodenum* there were two similar ulcers, from a line and a half to two lines in diameter. The *small intestine* contained but little mucus. Its mucous membrane was thin, greyish and spotted with many black points ; it was of a good consistence, except in its last third, where it was very much softened. Near the *cæcum*, for the space of a foot, were six ulcers, and many patches, red, oval, not ulcerated. The largest ulcers were the two nearest the *cæcum* ; they were an inch and a half in size, and were yellowish, and

had uneven surfaces. The mucous membrane was entirely destroyed in the corresponding part, and the yellow color was due to the bile resting upon a whitish substance, having a slight rose or yellowish hue, from one line to a line and a half thick, somewhat friable upon its free surface and around its circumference, so that it was easily separated from the surrounding parts, and it was formed in the cellular membrane. In this part the muscular fibres were thickened and somewhat red. As to the patches which were not ulcerated, the mucous membrane which composed them in part was thick, less soft than that in the intervening spaces, and the membrane underneath was similar to that which has been described, but it was somewhat less thick, firmer, and of a deeper rose color. The *large intestine* contained some pultaceous, fæcal matter; its mucous membrane was white and perfectly healthy, save in some red spots where it was a little thickened and softened. The *mesenteric glands* near the cæcum were enlarged, of a purplish color and softened; the others were of a slate color, and otherwise healthy. The *liver* was soft and of a greenish yellow color; throughout its whole substance internally and externally there was a great number of red spots, from four to five lines in diameter, angular, star-shaped as it were, without any special softening. The *gall-bladder* contained a great quantity of very viscid liquid. The *spleen* was of twice its usual size, very much softened; the other *viscera* were healthy.

If the drowsiness did not commence until a late period of the affection, it made rapid progress, was soon so severe that it was difficult to rouse the patient from it even for a moment, and as the brain presented nothing very remarkable, we must seek for the cause of the difficulty in something else. It cannot be considered as owing to the mucous membrane of the

stomach, the gravest lesions of which in those who died of other acute diseases than the typhoid affection are not accompanied by somnolency. We may say as much of all the secondary lesions, even of the softening of the mucous membrane of the small intestine between the diseased patches, for the same reasons; and of the meteorism, which does not occur in all the cases of somnolency. Therefore, by this method of excluding other hypotheses, we arrive rigorously at the conclusion, that we must place the cause of the drowsiness in the peculiar alteration of the elliptical patches of the ileum, and this deduction is strictly true for all the cases, and I shall refer to it again in the following paragraph, when upon the subject of delirium.

The march of the disease merits special notice, for it was obscure and doubtful during its first half, afterwards it was rapid and accompanied by the most characteristic and grave symptoms. In fact, it was only after twelve days of debility, which, however, did not prevent him from working, that the patient suddenly experienced a marked febrile attack with diarrhœa, and the debility became very great, the anorexia complete. After this state of things had continued four days, delirium came on; afterwards, somnolency and meteorism, both of which became quickly very severe; on the day which preceded death, the patient, when very ill, took by mistake a purgative intended for a painter, and had only some dejections without vomiting during the day; and at the autopsy the mucous membrane of the stomach was more or less red and softened throughout its whole extent, superficially ulcerated near the pylorus; many patches of the ileum were seriously altered, some ulcerated, others not so; the mucous membrane of the small intestine was softened to a remarkable degree in its last third; the heart, the liver, the spleen were not less softened.

It will be said at first sight that there were in this case two diseases, one anterior, the other posterior to the diarrhœa, and it may be thought that at a period but little remote from the latter, we should have called the first by the name of gastric embarrassment, and the second by the name of the typhoid fever. But a more accurate examination of the symptoms and lesions obliges us to repel this view of the subject; for, on the one hand, constipation or regularity of dejections is not very rare at the commencement of the typhoid affection, which may remain latent during its whole course, and on the other hand, the alteration of the elliptical patches being more severe than any other observed must be considered as of the oldest date, anterior, consequently, to that of the stomach.

The lesion of the small intestine, moreover, followed its accustomed march; the ulceration of the patches of the ileum were larger near the ileo-cæcal valve than any where else. And it is remarkable that the mucous membrane of the patches which were not ulcerated was only moderately softened, that the alteration of the corresponding submucous tissue was very serious; therefore, as I stated in the first volume, it is not probable that this lesion was consequent upon that of the mucous membrane; and we must admit merely that they commenced both at the same time.

Let us not, in conclusion, forget the important fact, that there was no vomiting after a drastic purge had been given by mistake to the patient on the day before death. In consequence of the condition in which the mucous membrane of the stomach was at that time, the fact seems somewhat extraordinary, but it is easily explained by the profound drowsiness of the patient, and it becomes a new proof of what has been already stated of the influence exerted by cerebral symptoms upon those of the stomach; in truth, the former prevent the occurrence of the latter in

subjects in whom the mucous membrane of the stomach is seriously altered.

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.

Eight out of fifty-seven of the subjects in whom the affection was *severe* had no manifest drowsiness. And in forty cases in which I noted with care the origin, duration and degree of this symptom, I observed as follows. It occurred on the first day of the disease in no individual. One only was affected with it the second day. It began on the sixth and eighth in two others, generally on the ninth; in an extreme case, on the fortieth, and, mean time, on the fourteenth day of the disease. Its mean term of duration was eight days; the extremes of this duration one and twenty. Four subjects had no well-marked drowsiness, save during twenty-four or thirty-six hours; three had this symptom during fifteen, eighteen and twenty days. It was very deep in a fourth part of the cases, that is to say, the patients fell into drowsiness, from which they had been aroused by some questions, the moment that we ceased questioning them. It was moderate or slight in the others; was not always constant, but it alternated with delirium when this last occurred, as in those individuals in whom the disease had a fatal termination.

Arrived at its *maximum* it gradually diminished, and I have never seen it follow an opposite course, or increase on the last day of the disease, save in one case.

In those in whom the affection was *slight* somnolency very frequently did not occur, that is to say, that nineteen subjects only out of thirty-one experienced it in different degrees. It was generally much less considerable, lasted a much shorter time, and occurred later in the disease in these cases than in

the preceding. It commenced on the fifth day of the disease in one subject, on the seventh and ninth in the two others, mean time, on the eighteenth day of the disease.

III. IN PATIENTS WHO RECOVERED FROM OTHER ACUTE DISEASES.

I observed somnolency in but two cases of subjects who died of acute diseases of this kind. Among those in whom the affection had a happy issue, a *pneumonic* patient experienced this symptom to a remarkable degree on the eighth and ninth days of the disease. It commenced in three *small-pox* patients on the third and fifteenth. And we may easily understand how we may be led into error in analogous cases, if it should occur before the eruption, since the general symptoms being then the same as those of many cases of the typhoid affection, we might suppose that the disease was typhoid fever. However, as in this latter affection, the somnolency rarely comes on before the fourth day, we might suspect, in case it should manifest itself sooner, that it is a precursory symptom of an eruptive fever. I have observed it, likewise, in a case of *scarlatina*, in some cases of *erysipelas of the face*, and in two more affected with *angina gutturalis*. There was neither somnolency nor stupor in cases of pure *enteritis*. If some of the eighty-four subjects affected with this disease had some tendency to sleep it was in proportion to the diarrhœa and the debility it produced.

In no one of these subjects was the somnolency at all to be compared with what it is in patients suffering from even a slight attack of the typhoid affection; therefore we must consider it as one of the most characteristic symptoms of this disease.

SEC. 3. — Delirium.

I. IN PATIENTS WHO DIED OF THE TYPHOID AFFECTION.

Delirium occurred in thirty-eight out of the forty-six subjects. The eight who did not have it died for the most part in consequence of the perforation of the small intestine (Obs. 8, 15, 20, 32, 42, 43, 45). Two others had it only from twenty-four to forty-eight hours at a certain period of the disease (Obs. 2, 16); I observed it only during the last two or three days of existence in two subjects who died on the twenty-third and twenty-fourth days of the disease, as is usual in those who die of other acute diseases (Obs. 24, 37), so that it would be very nearly exact to say, that out of forty-six subjects affected with the disease we are studying, thirty-four only or about three quarters had delirium.

It presented very remarkable differences in respect to the degree of severity, its time of beginning, the length of time it lasted even in the patients who died during the same period, between the eighth and fifteenth days, for example.

It was accompanied with violent agitation in twelve subjects, especially during the night, and we were obliged to restrain these patients by means of the straight jacket during the night only, or during the day and night, for a greater or less time, according to the degree of violence. It was so very great in one patient that the strongest means of confinement ever used were hardly sufficient to keep him in his bed on the tenth day of the disease, the day before death took place (Obs. 9). This form of the delirium was more frequent among those who died between the eighth and twentieth days of disease than among those who died later, in the proportion of six to thirteen for the first, from six to twenty for the second.

In the midst of this violent delirium, the majority of the patients, ten out of twelve, uttered loud cries, chiefly during the night, so as to prevent their comrades in the same ward from sleeping. This noisy disposition varied much, but it continued without interruption from the thirteenth to the twenty-fifth day of the disease in a patient who died at this last period (Obs. 36). Whilst this extreme degree of agitation continued it was impossible to obtain any answer from the patient or very incoherent answers were given. Thus one did not know his own name; another did not know that he was ill (Obs. 3, 38). The same individuals testified often the greatest impatience, and one of them who was confined by the straight jacket struck me with his fist in order to prevent me from examining his pulse.

Others without experiencing the same agitation kept continually talking during the night (Obs. 1, 10, 17, 22), and some, instead of uttering unintelligible words, were constantly *moaning* more or less loudly, which sound was almost as insupportable to those around as loud cries, and it continued while the patient was in a state of great drowsiness (Obs. 3, 29).

There is one fact worthy of notice, viz., one only of the ten patients who uttered cries more or less loudly while delirious presented at the autopsy some false membrane in the air passages; no one of them had partial destruction of the epiglottis, and, moreover, the subject in whom the vociferations continued longer than fifteen days had the larynx and epiglottis natural. Is not this a proof among a thousand others that occasional causes are without influence, or nearly so, when there are no predisposing causes likewise?

In the other cases delirium occurred chiefly during the night, and was not constant, and generally we could fix the attention of the patients who made some sensible remarks; but their

attention was soon fatigued, and the moment that the questions were continued too long they answered no longer rationally. Some while suffering from the gravest symptoms said they were well, a kind of perversion of sensation and of judgment which pathologists have usually considered to be one of the gravest symptoms, and which I have never met in patients who recovered. A woman who died at rather a late period of the disease spoke of the danger which surrounded her, on the seventeenth day of the disease ; she became perfectly indifferent to this fact, as likewise to everything surrounding her on the twenty-first ; she thought herself better on the twenty-third, passing thus quite rapidly from fear to indifference and hope (Obs. 29).

Except in one case in which the patient assured me, during the intervals between the attacks of violent delirium, that his money had been stolen from him, the delirium did not turn upon any one particular subject in any case.

It *commenced* in nearly all the subjects after the somnolency ; it arose on the first day of the disease in two patients who died on the eighth and fourteenth days of the disease (Obs. 10, 53) ; on the fourth in a man who died on the thirty-third day of the disease ; on the fifth in two who died on the nineteenth and twentieth days ; between the eighth and the twenty-fifth in the other cases. Its mean time of commencement was the tenth day of the disease in subjects who died between the fifteenth and twentieth days of disease, and the fifteenth only in those who died after this period.

As to its *duration*, it was the same in the patients who died between the fifteenth and twentieth days as in those who died after this period ; mean time, ten days. This happens

from the fact that delirium occurred later in those who died slowly than in those who died more or less speedily after being attacked by the disease, and because in these last it was constant and continued until death took place, whilst in others it ceased sometimes before or had more or less marked intermittence (Obs. 17, 18, 21, 22, 28, 34). The extremes of this duration differed but very little in subjects who died before from what it was in those who died after the thirtieth day of the disease, being from five to fifteen days for the first, from four to sixteen for the second.

Now, was there any sensible relation between the delirium and the condition of the brain, or that of any other organ? can any reason be found for the delirium in the condition of the organs after death? The facts upon this point are as follows.

Out of twelve subjects who either had no delirium, or in whom this symptom occurred only momentarily during the last two or three days of life, or for twenty-four hours during the disease, four had the cortical substance of the cerebrum somewhat of a rose color throughout its whole circumference. This organ was perfectly healthy in six others; it was very much injected, and one of the optic thalami somewhat softened in one case; the whole of its mass was somewhat less consistent than usual in the last. So great a variety in the appearances of the brain after death in patients who had no delirium, must lead us to doubt our ability to find in the appreciable alterations of the brain an explanation of the symptoms of which it is the source, and it indicates, as I have already stated in the second part of this work, that these diverse morbid changes are the results of the last days of existence (Obs. 2, 8, 15, 16, 20, 24, 32, 37, 42, 43, 44, 45).

These conclusions are confirmed by the condition of the brain in twelve subjects in whom the delirium was most violent. In five of them, in fact, the cortical substance was of a more or less bright rose color (Obs. 9, 19, 23, 27, 36); in five more all the substance of the brain was healthy. It was a little softened in an eleventh (Obs. 14); very much injected in the last (Obs. 18). Between the condition of the brain in these subjects and the preceding, the difference is so small that we may say that they were very nearly identical, whilst the cerebral functions were in an opposite condition, or entirely different in both.

The consistence of the brain seemed to be firmer than natural in two only of these twenty-four subjects. One had violent delirium; the other preserved the use of his intellectual faculties (Obs. 19, 45). Thus we have a new reason for not considering this degree of consistence as a pathological condition (p. 330, vol. 1).

It would be useless, after what we have previously stated, to compare in detail the condition of the brain and cerebral functions in other individuals, and I will limit myself to the remark that this comparison is not less conclusive than that which we have just made; so that it is nearly correct to state, that the apparent condition of the brain cannot explain the symptoms of which it is the source, any more than the mucous membrane of the stomach can account for the anorexia and other gastric symptoms in the great majority of cases. And as then we discover that these alterations of function depend upon more or less serious lesions of some other organ, we may believe that such was the case with the cerebral symptoms. Let us now examine this point.

Serious alterations in the cerebral functions have often been attributed to diseases of the stomach. Without denying that

these diseases may exert this influence, as they must necessarily have it like many other organs in some cases, I will now state the results upon this point in the subjects whose histories we are studying. Of the twelve who had no delirium, or in whom the delirium was slight, or occurred only during the last two or three days of existence, two had the mucous membrane of the stomach perfectly healthy (Obs. 2, 24); in two it was softened and thinned (Obs. 42, 43). It was mame-lonated with or without thickening, softened and more or less altered in color in the others. These different conditions were observed very nearly in the same proportion in those patients in whom the delirium was more or less violent; two of them, in fact, had the mucous membrane of the stomach in a natural condition; two had it softened and thinned (Obs. 26, 44); in one it was superficially ulcerated in many points. It was a little softened in another; more or less mamelonated in the last five cases (Obs. 3, 5, 9, 31, 38, 46). Therefore it is impossible to attribute to the condition of the mucous membrane of the stomach the cerebral symptoms which occur in patients who die of the typhoid fever.

The same want of relation existed between the cerebral symptoms, (among which we must not forget to place somnolency) and the state of the mucous membrane of the large intestine, the softening of the liver, of the spleen and of the heart. And as there was only one lesion which was constant and always the same in all the subjects, viz., the alteration of the elliptical patches of the small intestine, we must infer that it is in this last lesion and not in any other, that we must look for the cause of the delirium, and more especially of the somnolency; for this last symptom was observed in only a very small number of patients affected with other acute diseases, although in these affections the morbid changes of the mucous mem-

branes were nearly as frequent as during the course of the typhoid affection.

It will be said, perhaps, that if the brain and stomach were not altered in all the cases in which the cerebral functions had been more or less seriously diseased, if we cannot explain this trouble by the affection of either organ exclusively, yet we can explain it by reference at times to one, at times to the other, and that thus my deductions are not rigorous. But there are facts which prevent us from viewing the subject in this light, for the brain and stomach presented nothing remarkable in many cases (Obs. 14, 8).

The want of relation between the cerebral symptoms and the condition of the mucous membrane of the stomach is perfectly in accordance with what has been previously stated relatively to the period at which the lesions of this latter commence, viz. at an advanced period of the disease when already the functions of the brain are more or less seriously altered. The following observation affords a new proof of the truth of this assertion.

THIRTY-FOURTH OBSERVATION.

Anorexia; thirst; heat; constipation and afterwards diarrhœa; slight delirium; somnolency, soon considerable, constant during the last ten days of disease; very marked meteorism; death on the *twenty-fifth day*. Softening with diminution in thickness of the mucous membrane of the stomach; extreme softening with thickening of the mucous membrane of the colon; elliptical patches of the ileum, some ulcerated, others not so; mesenteric glands, corresponding to them, enlarged, softened and of a livid red color.

A FEMALE, æt. 17, of a lively, intelligent character, of a small and rather plump form, came to the hospital of La

Charité, Feb. 9th, 1823. She had been at Paris nearly nine months, contrary to her own wishes ; she had gained some little flesh after her arrival, and had been ill fifteen days and had kept her bed six days before entrance.

At the beginning, in consequence of the receipt of unpleasant news, she had headache, loss of appetite and strength, thirst, heat of skin, constipation. These symptoms continued ; the headache ceased on the eighth day, a little while after the application of ten leeches to the anus. At the same period the patient took, without having experienced any gastric symptoms, a few grains of ipecacuanha, which were followed by vomiting of bile ; the dejections which had been infrequent previously became liquid and quite numerous. The patient had at times pain in the abdomen, especially at the hypogastrium ; she then went to bed, had chills, and was from that period very sensible to cold. She had had cough during four weeks before falling ill, and this symptom increased a little more afterwards.

On 10th, face, purplish, otherwise sufficiently natural ; frequent somnolency, but it was easily overcome ; answers, correct ; slight delirium during the night as for some days before ; dull headache ; eyes, bright ; almost constant sub-sultus tendinum ; some uncomfortable sensations about the lower jaw ; tongue, red and dry at the point, yellowish and villous behind ; thirst, intense ; deglutition, easy ; anorexia but no loathing ; abdomen, generally sensible to pressure, supple, not meteorised ; one dejection during the night ; pulse, rather full and hard, at a hundred and fifteen ; skin, intensely hot ; some rose-colored lenticular spots upon back and upon the anterior and lateral parts of it ; cough, rather frequent ; speech, short ; oppression in breathing ; mucous râle, or a kind of

bass sound throughout the whole of the posterior part of the chest.

(Lemonade, three times ; gum potion ; flaxseed enema.)

In the evening quiet but settled delirium, so that the patient did not recognise the persons in attendance upon her. It continued a long time in the same degree, after a slight venesection. On the next day, at the usual hour of visit, the patient remembered it, and said she felt pretty well ; her face bore the appearance of sadness and of ennui ; her tongue was red and moist ; her abdomen meteorised, somewhat sensible to pressure ; the skin, quite hot ; the pulse, sunken ; constant subsultus tendinum.

(Blisters to the legs.)

Patient was incoherent during the day. On 12th, the mind was perfectly clear ; the tendency to sleep considerable ; and the patient made some ineffectual efforts to overcome it. The tongue was dry and red in front ; the meteorism considerable ; the pulse was more sunken than before, at a hundred and ten ; the other symptoms were as on the preceding day.

The drowsiness was constant during the day, and there was delirium during the night. On the 13th, in the morning the pulse was still more feeble than usual, at ninety-two only ; some mucous sputa, in which were many streaked with blood ; a little crepitation at the lower part of the right lung behind ; continuation of the subsultus tendinum and of the meteorism.

(Four leeches to each ear ; sinapisms to the feet ; gum potion.)

From that time until the 19th, the drowsiness was very great, difficult to overcome, and there was delirium during the night. However, the patient complained on the 14th of new blisters having been ordered for her, the first having caused

useless suffering, because she was not ill ! The meteorism diminished gradually, and the dejections, three or four in number during the day, were involuntary. The skin was quite warm, the pulse rather full. A little crepitous râle upon the sides of the chest. The blisters on the legs and thighs had a good appearance, and a fifth was ordered to the chest on the 17th. Leeches applied to the ears on the 14th produced no sensible effect, and an infusion of cinchona taken on the 18th was vomited.

On 19th, the face was pale ; drowsiness continued, and on being aroused the patient said she was not suffering.

(Omit cinchona.)

In the evening the respiration became very much labored, sixty times in a minute ; the patient partook of the sacrament and then began to be alarmed at her own condition, and soon fell into delirium. On the next day her face was cadaverous ; she retained still the use of her faculties, but had not sufficient strength to raise completely her eyelids, and she made vain endeavors to put her arm out of bed, thinking I wanted to feel of her pulse. Her complaints were constant during the application of the sinapisms, and she was heard to say, “ Can you feel my heart beat still ? Oh my God ! ” An hour after this she expired.

Opening of the corpse twenty-one hours after death.

EXTERIOR. — Considerable stiffness of limbs ; thickening of the skin upon which the blisters had been applied.

HEAD. — No granulations in the *arachnoid* (Pacchioni's glands) nor effusion under this membrane ; some drops of serous fluid in the lateral *ventricles* ; substance of the *cerebrum*, firm, moderately injected ; *cerebellum*, healthy.

NECK. — The *larynx* was healthy ; the *trachea* was red at its lower part.

CHEST. — The *lungs* were free from adhesions, did not contract, but filled the cavity of the thorax, although their cells were but a very little dilated ; they were of a pale rose color at their anterior part, of a violet rose color and a little congested behind, over a small extent of substance ; they were studded internally by a great number of grey, semi-transparent granulations. The *bronchia* were of rather a bright rose color, and their ultimate ramifications were lined with a puriform matter. The *pericardium* contained an ounce and a half of clear serous fluid. The *heart* and *aorta* were perfectly healthy. The right and left ventricles contained amber-like concretions.

ABDOMEN. — The *œsophagus* was in part deprived of its epidermis, but was otherwise healthy. The *stomach* contained a greyish fluid. Its mucous membrane had the same aspect to within three inches of the pylorus, near which it was of a very pale rose color. It was of a proper thickness and consistence in this part ; it was very much thinned and soft as mucus every where else. Save a very slight rose hue the *duodenum* presented no remarkable appearance. The *small intestine* contained a moderate quantity of mucus, of a more or less deep orange color. Its mucous membrane was very much softened and of a dark red color near the cæcum, for the space of four feet, and from there to the duodenum of a light red color, save in some spots which were whitish. The *elliptical patches* were seen only in the ileum ; those nearest the jejunum were whitish and not thickened ; the others were red, larger and thicker according to their proximity to the ileo-cæcal valve. Near this they were ulcerated over a space of

two feet, their mucous membrane was more or less extensively destroyed, the submucous membrane exposed or even destroyed, over a space of from five to six lines on some of the ulcers, and in this last case the corresponding muscular fibres were red and thickened. The elliptical patches, which were not ulcerated, were about a line thick in consequence of the increased thickness of the mucous membrane, which was red and softened, and of the submucous cellular membrane, which was not less thickened and reddened. Between these two kinds of patches were others, smaller and of irregular shapes, but otherwise similar, and some yellow miliary granulations having orifices or central points. In addition to these the mucous membrane was destroyed over a space of an inch and a half broad, around nearly the whole circumference of the intestine, and the submucous cellular membrane was somewhat red and thickened. The *large intestine* was a little larger than usual, and contained a quantity of very clear yellowish matter; its parietes were thicker than usual, and its mucous membrane extremely softened, thicker than usual, and it presented a great number of greyish, lenticular spots, marked with blackish points in their centres. All the *mesenteric glands* were of a more or less red and livid hue, and those nearest the cæcum were enlarged and softened. The *mesocolic glands* were of a deeper red, and large in proportion. The *liver* was somewhat red and engorged with blood, but was otherwise healthy; the *bile* of the gall-bladder was ruddy and thin; the *spleen* was of double its usual size, of a dark color, and moderate consistence; the *kidneys* were red and more engorged with blood than usual. The *uterus* was healthy. The left *ovary* was two inches and a half long, one broad; it was flattened, greyish, and as if containing fluid; the right was of a

rounded shape, one inch in diameter, and had in its interior a small cavity containing blood.

This observation is remarkable, like many others of which I have previously spoken, for the benignity of certain symptoms, the absence of many others, the severity and variety of the lesions. There was, in fact, neither nausea nor pains at the epigastrium; the diarrhœa was slight, yet the mucous membranes of the stomach and large intestine were seriously altered, the former being very much thinned and very much softened, the latter not less softened but somewhat thickened. But this complete absence of gastric symptoms, which we cannot conceive could have happened in a patient whose intellectual faculties were not altered, is easily explained by the fact of the existence of cerebral symptoms, and it seems to show that the gastric affection was posterior to the delirium.

The cerebral symptoms, although very grave, had an appearance of mildness; there was a little delirium during the night, very rarely during the day; there was drowsiness without interruption during the whole course of the disease, but as soon as it was overcome the patient answered rationally. Neither was the febrile excitement more marked, so that an attentive examination of the disease seemed to lead us less to an unfavorable prognosis than a favorable one. The length of time the drowsiness lasted was not a reason for despairing of the patient, since it is known to continue from fifteen to twenty days in the individuals who are cured.

The state of sensibility of the patient six days before death is, moreover, worthy of remark. At that time, in fact, she appeared as sensible to the action of blisters as one whose sensibility is the greatest, and refused to have some new ones applied, persisting that she was not ill! We could easily explain these two

contradictory circumstances if we could suppose that the patient said she was not ill only to avoid the pain which she feared would arise from the application of the blisters, but this opinion we cannot hold, as we afterwards found that the patient thought herself really free from danger at that period. So that we must, in this case, acknowledge that the sensibility of the skin was as acute as that of the organs deeply situated was dull; but this is not rare. The accuracy of the perceptions of the patient an hour and a half before death, when she could no longer raise her eyelids, is still more remarkable, and connects this fact with one nearly similar related above, in which the patient, a female, appeared insensible to pinching of the arm, the day before death, but she allowed without resistance, the limb to be thus pinched only because she had not strength sufficient to enable her to make the slightest movement (Obs. 8).

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.

In thirty-nine out of fifty-six subjects in whom the disease was *grave*, delirium occurred and presented the greatest variety with regard to its commencement, length of duration, degree of severity, and generally it was less intense than in the patients who died.

With respect to the commencement, two subjects, aged from fifteen to sixteen years, were attacked with it from the first day, but it was slight in both, occurred almost only during the night, so that it seemed, in fact, merely like an exaggeration of that unpleasant feeling which the majority of the patients with typhoid fever have during sleep, and which causes them often to make efforts to keep themselves awake. The delirium commenced between the fourth and tenth days of the disease in nine subjects, between the eleventh and twen-

tieth in twelve, between the twentieth and thirtieth in the others.

It was generally very short, although in some cases it lasted some time. Thus, seven patients had it during twenty-four hours only, between the sixth and twentieth days of the disease, without, moreover, the somnolency being less considerable ; three had it during two days ; two during fifteen and twenty-four in a remarkable degree and almost constantly. Its *mean* duration was six days and a half in the others.

Although it was generally calm, so as to show itself only by incoherent and often unintelligible remarks, and inappropriate answers to questions that were made, it was very violent in five subjects who uttered constantly loud cries, especially during the night, and we were obliged to maintain these patients in their beds by means of straight jackets. There was, likewise, agitation in some others, but in a much less degree, so that they could usually be restrained by means of a cloth passed across the body and attached to each side of the bed.

During the period of increase, or in that state of the disease when the febrile action was still somewhat severe, the delirium did not bear upon any subject in particular, but consisted merely in an inability on the part of the patient to make perfect use of his intellectual faculties. But after this period, when the fever had diminished much, or even at the period of convalescence, I have twice seen individuals in whom the delirium ran upon a particular subject. One patient in the latter circumstances thought, during five successive days, that after his admission into the hospital he had returned to his own quarter of the country, and had brought back with him some young wolves which he wished to sell ! He could not tell how he had travelled, but during five days he continued to labor under the same delusion, and, moreover, he supported his

assertion with much calmness, and it was after returning from the garden in which he had been taking a walk one day, that he discovered his mistake. The other case was that of a young girl much less advanced towards convalescence, and of great sensibility, who had had much anxiety of mind previously to falling ill. She declared for two days in succession that her sister, who resided at St. Germain, was dead, and that she had seen her three days before, and this she sustained with the appearance of the strongest conviction of its truth; she troubled herself about her young nieces, about their great distress, and she supplicated me with an appearance of great grief, to write to one of her relations upon the subject. This delirium had this peculiarity, likewise, that it was afterwards supplanted by a species of delirium which varied, and which disappeared after the same space of time.

Moreover, this symptom did not disappear suddenly, but by degrees; the *perfect* exercise of the intellectual faculties was not re-established until a little later, and what seems to me to be truly worthy of remark is this, viz., that with the exception of one of these patients, no one of those I observed had the least derangement of the intellectual faculties after the fever ceased. Now this fact would be impossible, it seems to me, if the delirium, during the course of the typhoid affection depended upon a grave lesion of the brain, as an inflammation of the whole of its substance would be; for such a lesion must, at least in some cases, produce consequences whose existence would be proved by some alteration of intellect or power of motion. Thus the study of symptoms confirms what I thought I could deduce from the simple consideration of the state of the brain after death, and all the facts seem to prove that the delirium of the typhoid affection cannot be explained by any *appreciable* alteration of the brain.

Among the patients in whom the disease was *slight*, delirium was rare. Three only out of thirty-one were attacked with it to a certain degree, one of them during twenty-four hours, another during two days, a third during seven. It occurred towards the termination of the fever in the last, between the twenty-eighth and thirty-fifth days of disease, when the diarrhœa was still considerable, and was stationary. The patient thought he was far from Paris, near his own quarter of the country, without, however, being able to mark with precision the place in which he was. He lost almost entirely his memory, and during these seven days could not retain the name of the hospital.

III. IN PATIENTS WHO DIED OF OTHER ACUTE DISEASES.

Out of thirty *pneumonic* patients from whom I was able to obtain exact statements in regard to the symptom we are studying, eight, or about a fourth part had more or less serious delirium at a period and during a space of time that varied much. In a subject in whom the disease lasted seven days, it commenced at the same time with the affection; it continued uninterruptedly until death took place; it was of a quiet character during the first five days, but afterwards it became noisy and violent, so that the patient had to be restrained by means of a straight jacket. In five patients who died between the eleventh and twenty-fifth days, it began from four to seven days before death took place, and ceased only with life. Two of them had it in a remarkable degree, were kept in their bed by means of a straight jacket, and the patient in whom the disease lasted seven days said to M. Chomel, with whom he had always been acquainted, that he would like very much to see him. When M. Chomel informed him that he himself was the person, the patient answered with much warmth that he

had known M. Chomel too long and too well to be deceived in relation to him ! Delirium occurred in the seventh patient during the whole of the fourth day of the disease, and between the twenty-seventh and thirtieth in the last, who died at the end of the second month of the disease. In both it was characterized by constant talking during the whole night. Somnolency did not follow it, and this fact marked it as different from the same symptom in the typhoid affection.

As in this last it seems to me to be impossible in the actual state of science to find the cause of it in any appreciable alteration of the brain. For five of the eight subjects whose cases we are now studying had the brain perfectly healthy. It was more or less deeply injected in the others, and the cortical substance was of a rose color only in one case, whilst this color occurred in six individuals who did not have delirium, or who had some during the last twenty-four or thirty-six hours of existence only. It is to be remarked that the brain was in every respect natural, even in two subjects in whom the delirium lasted uninterruptedly during seven days.

It cannot, likewise, be attributed to a sympathetic influence exercised upon the brain by some secondary lesion, that of the mucous membrane of the stomach, which was healthy in three of these cases ; neither for the same reason was it owing to an analogous lesion of either intestine. We are obliged, therefore, in this disease as in the typhoid affection, to recur for an explanation of our difficulties to the organ which is always affected, and is sometimes the only organ affected, viz., the lungs, whose inflammation causes so many secondary lesions.

But must we suppose this action of the lungs and of the elliptical patches of the small intestine to be the effect merely of a sympathy, which we cannot appreciate, in their capabilities of

producing disease, or as the consequence of a febrile excitement of which the inflammation of these organs was the source? This last supposition seems to me to be the most probable, because the delirium, as we shall soon prove, was proportionate to the severity of the fever in the sum of the cases in which it was observed; and because by the second supposition we must admit that the sympathetic action of organs entirely different in their structure and function is the same; now, this seems to me to be impossible.

I do not wish to be understood as admitting, with reference to the present subject, no other influence than the febrile excitement, since a short time since I observed that delirium or its consequences were not entirely the same in individuals who died of the typhoid affection and in those who died of pneumonia. That which I mean to say and which seems to me to be evident is this, that the sympathetic influence of the organs is secondary, and that of the fever is the principal.

In this place a remark naturally presents itself; in fact, I have already noticed it, but I think it will not be less useful to recur to it now, viz., that we have not any right to say, because there is a want of connection between the cerebral symptoms and the anatomical condition of the encephalon, that, consequently, the brain had no influence upon the issue of the disease; for this influence exists and must be considerable, since at the appearance of the cerebral symptoms, others either cease entirely, diminish, or are stopped in their course. What importance is it, however, with respect to effects, for us to know what is the cause of trouble in our functions, when this trouble is of a serious nature? Dyspnœa, if it is extreme, may produce death, whatever may be the cause of it, whether we can or cannot explain it by the condition of the organs;

such is the case with syncope. We must, therefore, in the cases in which the sensible alterations of our organs do not explain the death of the patients, take account of the condition of the functions, and especially of the cerebral functions.

In patients who died of *other acute diseases* in whom the disease was not in the brain, six out of twenty (very nearly in the same proportion as in pneumonia) had delirium of a more or less serious nature. It occurred on the seventh day of a peritonitis which proved fatal on the eleventh, and was followed by slight somnolency ; between the fifth and eighth days of a case of scarlatina which did not prove fatal before the twenty-ninth ; on the twenty-fifth, during twenty-four hours, of a case of metritis which became mortal on the thirtieth ; and in two cases of phlegmonous erysipelas of the legs, on the fifth day of attack in one of the subjects who died on the eleventh, and during a large part of the disease in another who did not die until the fifteenth.

The cerebrum was perfectly healthy in these last two cases, which were the most remarkable we are studying ; it was rather soft, pale and moderately injected in a patient who died of peritonitis ; it was firm and had many red points of blood in it, in the subject who died with variola. Its posterior lobes were softened in the patient who died of scarlatina. Therefore, in these cases as well as in those which proved fatal from pneumonia, the condition of the brain had nothing determinate in relation to it, and as such was likewise the case with the mucous membrane of the stomach and small intestine, the preceding reflections apply exactly to these subjects.

IV. IN PATIENTS WHO RECOVERED FROM OTHER ACUTE DISEASES.

Ten *pneumonic patients* out of fifty-six had delirium, three during twenty-four hours only, others during a space of

from two to six days, with an interval sometimes of two or three days. It was constant, or very nearly so, in those cases in which it lasted five or six days. It commenced with the disease in one patient, and on the second day in two others ; between the fifth and fifteenth in the remainder of the patients. The agitation was considerable in three of them so as to make it necessary to have recourse to the straight jacket.

If there was diarrhœa or some gastric symptoms in a few cases, there were none in the majority of the cases, therefore, the preceding reflections are justified by these new facts.

Delirium occurred in four of the twelve *small-pox* patients whom I observed ; that is to say, in a much larger proportion than among the pneumonic patients, but, however, for a space of time which was much less ; in two patients during the night only, on the seventh and eighth days of disease ; in the others during twenty-four hours, between the fourth and fifteenth days of the disease.

I observed it, likewise, in three of the eighteen subjects affected with *scarlatina*, on the fifth, sixth and seventh days of the disease, during a day in one case ; from two to three in the others, and it was so violent in the last that we were obliged to restrain him by means of the straight jacket. No gastric symptom would account for the delirium in these three cases.

There were restlessness and some reveries in two of the fourteen subjects affected with *measles*. No one had delirium.

Therefore, in these three species of affection which present, moreover, many points of contact, the delirium was exactly in proportion to the degree of fever.

Out of thirty-eight patients affected with *erysipelas of the face* eight, or a fifth part, had delirium. The disease ex-

tended to the scalp in six of them, and in six more in whom there was no delirium, and the intellectual faculties were quite perfect. Without absolutely denying the influence of the neighborhood of disease upon the cerebral symptoms, it is evident from this last fact and from those previously given, that it had, likewise, another cause, which, doubtless, was not the least powerful and which cannot differ essentially from what has already been signalized. Moreover, in this case, as in the course of other acute diseases, delirium appeared at various epochs, on the first day of the disease in two cases ; between the fourth and sixth in the others. It ceased after having lasted twenty-four hours, or even less, in three subjects ; it continued from three to four days in the others, and beyond that in one of them.

Eight subjects out of thirty-nine of those affected with *angina gutturalis* experienced much agitation during one or many nights, and one of them had true delirium on the eighth day of the disease, but during the night only. This infrequency of delirium among these subjects is in favor of what has been stated relatively to the most probable cause of it ; the febrile excitement being rarely of any moment, and lasting but a short time in angina.

None of the patients (twenty) in whom I observed *zona*, *erythema marginatum*, or *urticaria* had delirium. But many of them were very restless, a symptom which often precedes delirium, and which supposes generally a less powerful cause than that which produces the latter.

It was the same with individuals affected with *rheumatism* and *pulmonary catarrh* (a hundred and twenty-nine), some of whom experienced much anxiety and restlessness without any evident trouble of the intellectual faculties.

Of the eighty-four patients affected with *enteritis*, properly

so called, two had a little delirium during the night before they were admitted to the hospital. The exercise of the intellectual faculties became difficult in some others. But this dulness of intellect always in proportion to the debility caused by the abundance of the alvine evacuations and which we observe in all cases of debility, whatever may be its cause, a painful fatigue (courbature) for example, this dulness, I repeat, would hardly be worthy of notice, if I did not make it a point of duty to cite every fact, and especially those relating to diarrhœa, which has been of late confounded with what is called severe fever, although, as we shall see when speaking of diagnosis, that it would scarcely be possible to cite two diseases more entirely different from one another. However, this almost entire absence of delirium in so large a number of patients, many of whom had excessive alvine discharges, is no longer remarkable, when we remember the facts previously given ; for the febrile excitement was as little marked in enteritis as it was considerable in the majority of the cases in which there was delirium.

Eight out of seventy-three subjects affected with *colica pictonum* were very anxious or very restless during the night ; four had violent delirium lasting from six to eighteen days, and it commenced on the fourth day of the disease in two patients. A remarkable febrile excitement occurred in one of the four patients who had delirium ; it was much less marked in the others. And if we can connect delirium with the fever in the former, it is hardly possible to do so in the latter, so that these facts seem at first in contradiction with what I have previously stated. But this contradiction is much more apparent than real, inasmuch as, doubtless, there is but little difference between the extreme anxiety arising from pain and absolute delirium, and it would be difficult, on this account, to

admit that the delirium and anxiety arose in these subjects from different causes. Therefore, in the case in which the febrile excitement was well marked it doubtless had less effect towards producing delirium than the pain itself. One may be surprised that the violence of this last did not more frequently produce trouble in the intellectual faculties. But we cannot, moreover, account for it from any alteration of the mucous membrane of the stomach, which appears to offer no appreciable morbid change during the course of painter's colic.*

From the above facts it appears that delirium, like other secondary lesions observed during the course of the typhoid fever, or of any other acute diseases, commences rarely on the first day of the affection, but usually between the seventh and tenth; likewise, that the condition of the brain, in the actual state of the science of pathology, cannot explain the cause of this symptom in fatal cases; that it is equally impossible to attribute it to secondary lesions, the alteration of the mucous membrane of the stomach and intestine, for example, which were evidently posterior to it in more than one case; that its frequency, its violence, its time of duration, were in proportion to the febrile excitement, whatever might be the organ primitively affected; that it is to this febrile excitement, much more than to a sympathetic connection with the diseased organ, that we must attribute it. We cannot deny, however, that the sympathetic action may have some influence, but the febrile excitement is the only circumstance which is common to all the patients, and we cannot refer the phenomenon, which is almost always exactly the same, to different causes.

* Memoir upon sudden death. — LOUIS.

One reflection naturally suggests itself in this connection, viz., if the most serious trouble in the cerebral faculties occurs in a great number of cases without the brain presenting any appreciable lesion, it must be the same with many other functions and organs, and far from being astonished that the mucous membrane of the stomach should be often healthy in patients who experience gastric symptoms, we must regard this fact merely as a confirmation of a general law, and analogy would have led us to *suppose* this to be true before obtaining a proof of it. I do not say that analogy would have led us to *admit*, for analogy is not a means of proving any thing; it puts us in the way to arrive at truth, but it can do nothing more.

SEC. 4.—Spasms.

I. IN PATIENTS WHO DIED OF THE TYPHOID AFFECTION.

This symptom appeared under two forms, stiffness and alternate contraction and relaxation of the muscles. I observed it in sixteen cases, or in a third part of the subjects, generally a number of days before the fatal period; four times only one or two days before death; in two out of seventeen patients who died between the eighth and twentieth days of the disease, in half of those who died later.

These spasms were situated in the muscles of the superior extremities, of the neck, lips, of the other parts of the face and in the diaphragm as follows.

The upper extremities were in a state of permanent contraction in four subjects, during one, three, five and fifteen days before death occurred; at least, I found them in this condition every day at the time I observed the patients (Obs. 5, 14, 39, 46), and with this stiffness was connected a similar

stiffness of the neck in one of them (Obs. 46). Instead of a permanent contraction there were spasmodic movements of the arms in three subjects, either in the midst of the disease, during three successive days (Obs. 34, 35), or during the last two days of existence (Obs. 23). In four I observed merely subsultus tendinum during an interval of time in the middle, or at a later period of the disease, for a space of time which varied from two to five days (Obs. 3, 4, 17, 29). Spasms occurred in the muscles of the lips and other parts of the face in three subjects, a short time before death in one of them (Obs. 7), five or six days only after the commencement and during a considerable space of time in the others (Obs. 28, 36). Two patients had hiccough many days before death, and the muscles of the neck were, likewise, spasmodically contracted in one of them (Obs. 15, 30).

The brain otherwise presented no appreciable difference when seen in those patients who had spasms and in those who had not any ; but this is not astonishing after examining the analogous circumstances relative to the delirium.

The two following observations, which are interesting in more points than one, will furnish us with the examples of the principal aspects under which this symptom presents itself.

THIRTY-FIFTH OBSERVATION.

Colic pains ; diminution of appetite ; sensibility to cold ; chills ; heat ; complete anorexia on the seventh day, and soon afterwards numerous dejections ; meteorism ; drowsiness ; delirium ; spasmodic movements ; during the latter days of life phlegmonous erysipelas ; eschar upon the sacrum ; death on the *thirtieth day*. Medullary substance of the brain, very much injected ; cortical, of a rose color ; elliptical patches of the ileum, red, some ulcerated, others not so ; mesenteric glands, corresponding to them, red or bluish, enlarged and very much softened, &c.

A MASON, æt. 19, of a moderately strong constitution, having been at Paris four weeks, and having had diarrhœa during the whole of that period, complained of having been ill eight days when he was admitted into the hospital of La Charité, May 1st, 1824, having had, nevertheless, during the previous week pains in the head and colics alternately, much sensibility to cold, a very variable and generally diminished appetite. At the commencement, chills, followed soon by heat, complete anorexia, constipation. The heat and anorexia continued, the chills did not return, and on the fifth day constipation yielded to the diarrhœa. There had been neither nausea, pains in the abdomen nor thirst.

May 1st. Face, yellowish ; features had a harsh and disordered aspect ; cephalalgia ; hesitation of speech, as it had been during four days ; spasmodic motions of the upper extremities very frequent ; patient was ignorant of the place in which he was, said he did not always have his right mind, and after having made some rational answers, replied to some other remark than to that which was made to him ; tongue, moist, red at edges, whitish in centre ; no thirst ; slight pains

below the navel ; meteorism ; numerous dejections, involuntary for two days ; skin, somewhat hot ; pulse, eighty, without any peculiarity ; respiration, slightly accelerated ; dry, sonorous râle in abundance, and heard universally over the chest.

(Sweetened barley water ; flaxseed enema, twice ; bath.)

The patient was very calm while in the bath, where he remained an hour, but at midday there was extreme restlessness, and it was necessary to have recourse to the straight jacket. On 2d, incoherent remarks ; sardonic smile ; spasmodic movements of the arms as frequent as before ; pulse, feeble, at eighty-five ; patient refused drinks and asked for wine ; the meteorism and involuntary dejections continued.

(Bath ; four pounds of ice upon the head during the bath ; sinapisms.)

The delirium continued ; patient was restless during the day and drowsy during the night. On 3d, somnolency ; depression of features ; general spasmodic motions of limbs ; hypogastrium, very sensible to pressure ; continuance of the meteorism and of the other symptoms.

(Sweetened barley water ; infusion of cinchona ; potion of wine and syrup of cinchona, āā ʒ ij, and extract of cinchona ʒ i ; aromatic fomentations ; sinapisms.)

The drowsiness was constant ; the patient took only half his potion, and the straight jacket was early taken off. On 4th, extreme stupor ; spasmodic motions of lips ; those of the upper extremities were less marked than the day previous ; almost permanent closing of the eyelids ; tongue, imperfectly protruded, and it looked as if roasted ; lips, thickly crusted ; pulse, slightly accelerated.

(Same prescription with the addition of twenty grains of musk to the potion.)

On 5th, stupor as great as possible ; drowsiness difficult to

be overcome ; no spasmodic motions ; slight meteorism ; many involuntary dejections ; pulse, eighty ; cough, not frequent ; a little mucous râle upon the sides of the chest.

(Same potion with dry extract of cinchona 3 ij.)

From 5th to 10th the drowsiness continued, there were a little delirium and restlessness during the night, and some spasmodic movements ; the tongue was sometimes a little moist and red in front ; the dejections were always involuntary and more or less frequent, and the fecal matter was usually mixed with worms. On 8th, the abdomen was flattened ; the pulse regular, at a hundred and four. There were no lenticular spots upon the chest or abdomen. The tonic potion was discontinued between the 8th and 10th.

On 10th, same stupor ; spasmodic movements of the arms more marked, almost constant ; very sensible spasmodic contractions of the great pectoral muscles ; dejections rather less numerous ; eschar upon the sacrum.

(Gum potion with sulphat of quinine and musk āā ði ; aromatic fomentations ; enema of camphorated cinchona.)

There were alternations of drowsiness and delirium during the day, and from that time until 17th, the day on which death occurred, I observed as follows. The drowsiness was constant ; sometimes interrupted by delirium. On 15th, the patient was heard to exclaim, " Oh, my God !" On 16th, there was constant moaning. There were frequent spasmodic movements of the shoulders from 12th to 16th ; the eschar on the sacrum fell on 15th. On 14th, an œdematous erysipelas commenced on the right fore-arm, and did not appear to make much progress during the following days. The dejections were infrequent from 10th to 12th ; they were figured on 13th ; rare and involuntary afterwards. The abdomen was supple and not pained by pressure, not meteorised on

13th, but was so to a remarkable degree on 17th. The skin was always very hot.

The tonic potion was suppressed on 12th, and during three successive days a bath was ordered, and ice was applied to the head during it. The patient died a short time after the visit of the 17th.

Opening of the corpse twenty-three hours after death.

EXTERIOR.— Moderate emaciation ; no dark colored wheals as from stripes in front or on the sides of the body. Right fore-arm enlarged and red as it was during life in its two upper thirds ; hardening and thickening of the skin over the same extent of surface ; and beneath it there was puriform matter of a rosy hue, good consistence, traversed by a number of filaments of the cellular membrane. This same purulent matter was found between the superficial and deep-seated strata of the corresponding muscles, which, moreover, were not altered in any way save in having some ecchymosed spots in their periphery.

HEAD.— Slight effusion under the *arachnoid*. The *cortical* substance of the brain was of a pale rose color ; the *medullary* had many red points in it, and its white substance had generally a lilac hue ; both were of a good consistence. There was about a spoonful of serous fluid in both of the lateral *ventricles* ; somewhat less in the lower occipital fossæ. *Cerebellum*, natural.*

NECK.— The *pharynx*, *epiglottis* and *larynx* presented nothing very remarkable in appearance and the *trachea* was simply a little red.

CHEST.— There were two spoonfuls of serous fluid in the

* The subject having been given up for dissection of the muscles of the back, I was unable to examine the spine. — LOUIS.

pericardium ; the *heart* and *aorta* were perfectly healthy. The left *lung* was perfectly free from adhesions ; it was soft and generally of a rose hue ; it had at its posterior part large patches of a blackish red color, more or less thick and hard, which contained no air ; some were granulated, others were not so, and the latter were splenified, and afforded when pressed a moderate quantity of blackish blood without air. The right *lung* was somewhat adherent ; it was heavier than the left in the lower part, where there were some blackish patches, which were larger and thicker than those in this latter ; throughout the remainder of its substance it was in the first stage of inflammation. The *bronchia* were thin and red, and contained a little mucus of the same color.

ABDOMEN. — *Œsophagus*, healthy, colored red at its lower part. The *stomach* was of medium size and contained a small quantity of bile. Its mucous membrane was of a clear yellow color in the great cul-de-sac ; greyish in other parts, especially along the great curve ; it was covered throughout its whole extent, save the great cul-de-sac, by a thick stratum of viscid mucus, difficult to be detached, even after a maceration for two hours ; it was of proper thickness, and had a little more consistence than usual in the great cul-de-sac, where we could raise strips five lines long, as was likewise the case along the great curve. The *small intestine* contained a great quantity of bile mixed with mucus. Its lining membrane was generally greyish, thin, of good consistence ; all the *elliptical patches* of the ileum were more or less red and prominent, and this redness and prominent state increased according to their proximity to the cæcum, near which five among them were ulcerated. In the last four feet they projected above the adjacent membrane more than one line high, in consequence of the mucous membrane of which they were principally composed, and this last

was more than a millimeter* thick, and was so soft that it was impossible to raise strips of it. Beyond, on approaching the jejunum, the thickening and softening were less. The corresponding cellular membrane had a thickness and color similar to those of the mucous; it was exposed and partly destroyed upon the ulcerated patches. The *large intestine* was twice as large as usual in its first half, and in it there was a great quantity of pultaceous, yellowish matter. Its mucous membrane was very much softened, somewhat thickened and reddish in the cæcum and right colon, afterwards it became gradually less thick, less soft and of a natural color. It presented in the softest part twenty ulcerations, from four to eight lines large, and nearly as many flattened tumors still smaller, composed chiefly of the thickened cellular membrane, which was red, homogeneous and firm in this part. Three of these tumors were slightly ulcerated. The *mesenteric glands* corresponding to the ileum and those of the *mesocolon* were of a bright red, greyish or bluish color, enlarged and very much softened. The mesenteric were about the size of a small nut or filbert. The *liver* was healthy; the *bile* of the gall-bladder, reddish and greenish, and very fluid; the *spleen* and other *viscera* of the abdomen were natural.

Although the diarrhœa was considerable, still the cerebral symptoms, the delirium, the drowsiness, the spasmodic motions of the limbs were the predominant symptoms, and gave to the disease somewhat the aspect of *ataxic fever*. After the patient had had, during eight days, uncomfortable sensations, sensibility to cold and less appetite than usual, without, however, being led to suppose that he was ill, he experienced a violent

* Note 2, vol. I, page 9. — H. I. B.

chill, pains in the head, constipation ; the anorexia became complete, and soon afterwards diarrhœa supervened. On the fifteenth day, or in the midst of the disease, the intellectual faculties began to be somewhat affected ; there was somnolency ; almost constant spasmodic motions of the limbs. These spasms continued in the same degree many days in succession, then they had some remission, became considerable six days before death, attacked the great pectoral muscles, the muscles of the lips and lower jaw. This increase in the spasms appeared to precede for some days the development of a phlegmonous erysipelas, and at the autopsy the cortical substance of the brain was generally of a rose color, the medullary very much injected, of a white lilac color ; the elliptical patches of the ileum were more or less seriously altered ; the mucous membrane of the colon very much softened and ulcerated in its first half ; there was a large ulceration on the sacrum, and rather a large quantity of pus in the superficial and deep-seated cellular membrane of the right arm and fore-arm. That is to say, although the form of the disease was ataxic, its course was the same as in the most common cases of the affection in which the cerebral symptoms are light, for the most serious, and, doubtless, the oldest lesions were those in the ileum nearest the cæcum. Therefore, the variety, the number, the degree of the cerebral functions, may, as we have already seen, give to the disease a different form from that which is natural to it, without its fundamental characteristic, the alteration of the elliptical patches of the small intestine, ceasing to be still the same.

However, it may be asked, notwithstanding the facts above-stated, if the cerebral symptoms may not be connected with the appreciable alterations of the brain, with the rose color of the cortical substance, and the very pale lilac hue of the medul-

lary substance which was observed. I shall repeat upon this point merely what I have already stated, viz, that there is a rose color in the brain equally in those who have more or less severe cerebral symptoms, as well as in those in whom the intellectual faculties remain unchanged, in subjects who die of the typhoid affection and those who die of other diseases; that it arises very probably during the last days of life, and, consequently, it is impossible to refer these symptoms to it. As to the white and somewhat lilac color of the medullary substance, it is the only case of the kind which I have seen, and how can we explain any thing from a single fact?

The extent, severity, especially the rapid progress of the erysipelas deserve to be remarked upon, for this rapid course occurs in a number of affections which come on during the last days of acute disease. The permanent character of the red color of the skin must be remarked upon as one of the numerous facts which prove that a really inflammatory redness does not disappear after death. Finally, I would call the attention of those who lay great stress upon the effects of medicines, and especially of tonics to the fact, that the mucous membrane of the stomach was nearly natural, notwithstanding the tonics and strong stimulants which had been administered.

THIRTY-SIXTH OBSERVATION.

Pains in the limbs and loins for eight days ; on the eighth, cephalalgia, dazzling sensations, pricking pains in eyes, tinnitus aurium, nausea, pain at the epigastrium ; after this, subsultus tendinum ; spasmodic movements of the wrists, extending soon to the muscles of the face ; permanent contraction of the arms ; somnolency ; delirium ; diarrhœa ; meteorism ; death on the *twenty-first day*. Cortical substance of the cerebrum and cerebellum, of the corpora striata and corpora rhomboidea, of a violet rose color ; elliptical patches of the ileum, greyish and bluish, some ulcerated, others not so ; corresponding mesenteric glands of the same color and contained some cavities with pus in them ; mucous membrane of the stomach, softened and thickened.

A SHOEMAKER, æt. 22, of medium size, not fleshy, was admitted to the hospital of La Charité, Aug. 2d, 1824. He had been subject to headache and pulmonary catarrh from childhood ; had jaundice at fifteen years of age, pneumonia at seventeen ; he had committed no excess of any kind, and had been at Paris one month. The disease having been preceded during eight days by pains in the limbs and loins had commenced in the middle of the night with rather severe headache, pricking sensations in the eyes, buzzing in the ears, giddiness, heat, thirst, nausea, pains at the epigastrium, at the umbilicus and in the other parts of the abdomen. These symptoms continued ; patient had had sweat every night, but no chills, and when he was admitted to the hospital, on the fourth day of the disease, no kind of remedy had been ordered, but the patient had kept himself to strict diet, and taken tea for drink.

On 3d, commencement of the fifth day ; face, a little red, and without expression ; eyes, lachrymose, reddish and somewhat painful ; at intervals, somnolency ; answers, correct ;

signs of impatience at times ; no pains in the limbs ; frequent subsultus tendinum ; very sensible spasmodic motions of wrists ; tongue, red, moist at tip, whitish and less moist beyond ; thirst, severe ; anorexia ; no nausea for two days ; pains in the umbilicus, less at the epigastrium, increased by pressure ; one liquid dejection ; (constipation previously) ; moderate injection of the integuments ; skin, quite hot ; pulse, at ninety-five, not large ; respiration, moderately accelerated.

(Venesection to $\frac{3}{4}$ xij ; whey ; orge. oxymel, twice.)

Blood, neither buffed nor cupped ; four liquid dejections during the day. On the next day, 4th, slight stupor ; dull headache ; eyes, lachrymose, but not painful ; same spasmodic motion at the wrist, as on the preceding day ; tongue, dry, smooth, not red ; sensibility to pressure in the right iliac fossa ; skin, very hot, purplish ; pulse, at a hundred ; neither sudamina nor rose-colored lenticular spots.

On 5th, no headache ; hypocritical, as it were, aspect of face ; frequent motion of the head forwards and backwards ; somnolency ; almost total loss of memory ; tongue, protruded with difficulty, moist in front, a little red behind ; slight meteorism ; two rose-colored lenticular spots upon the abdomen ; skin, very hot ; pulse, somewhat vacillating, at ninety-five.

Some involuntary dejections during the day ; uninterrupted delirium during the night. On 6th, the delirium continued constantly ; the answers of the patient were not in accordance with the questions which I addressed to him ; he was lachrymose, and the left eye was red ; head, restless as before ; eyebrows, generally contracted ; eyelids often closed ; hypogastrium, sensible to pressure.

(Whey ; lemonade, three times ; emollient enema ; blister to legs.)

The delirium was constant, and the patient was confined

during the night. On 7th, in morning, almost constant loud cries ; mind gone ; spasmodic movements of eyelids and lips ; face, rather bright ; left eye less red than on the 6th ; tongue, moist and somewhat of a rose color ; abdomen, very much meteorised ; involuntary dejections, (some lumbrici in them) ; pulse, little accelerated, regular.

(Eight leeches to each ear ; cold vinegar and water to the head, which was previously shaved.)

The patient redoubled his cries when the cold compresses were placed upon his head, and day and night he did not cease talking, crying or singing. On 8th, same delirium ; spasmodic contraction of the lips ; tongue, dry ; abdomen, but little enlarged ; frequent dejections ; pulse, at ninety ; skin, moderately hot.

(Lemonade, three times ; emollient enema ; sinapisms.)

Until the next day there were alternations of drowsiness and noisy delirium. On 9th, there was somnolency, which it was difficult to overcome ; erysipelatous redness towards the lower part of the legs.

(Lemonade ; acidulated infusion of cinchona ; gum potion with extract of cinchona, ℞ ij.)

From the 3d to the 20th, when the patient died, the delirium was almost constant, often accompanied by loud cries and vociferations ; there was drowsiness in the intervals, and rarely a little calmness, save during the administration of warm baths which were given every day from 11th to 17th, for a space of time which varied from one to three hours. The patient appeared to recover the use of his intellect on 12th, while in the bath, and complained that the water was cold. His cries did not diminish save during the last days of life. His arms had very marked spasmodic motions on the 11th, and from 18th to 20th, these movements were much less frequent, from

time to time changed to an almost constant stiffness of the same parts, which could not be overcome without causing the patient to cry out. On 13th, the patient said that he had a sensation of general coldness, more severe about the feet than in other parts, and he then added, that this was inconceivable in such a warm season of the year. On 15th, there was under the epidermis of the left elbow a rather thick purulent matter. The left eye, which was not more red on 12th, became so the 14th, still more so on 17th, like the right one. The tongue was moist and natural on 10th; it was dry afterwards; the thirst was always very great, and the patient took only half of the bitter infusion. There was neither nausea nor vomiting; the dejections were always involuntary, moderately frequent, without blood or slime in them; the abdomen was rather contracted than distended, not pained by the deepest pressure, and on it there were many rose-colored lenticular spots on 11th, and numerous sudamina on 15th. The skin was always rather hot, and somewhat moist on 15th. The face was covered with large drops of sweat on 18th, the pulse was at eighty-nine on 11th, at a hundred and ten after the 13th; the cough, which commenced with the delirium, was slight. Respiratory murmur, natural on 16th.

The patient died at five, P. M., having had in the morning the arms half bent, stiff and inflexible, spasmodic movements of the lower jaw and shoulders, and a tremulous pulse.

The lemonade, the infusion, and the bitter potion were continued, and the dose of the extract of cinchona increased gradually, so that the patient took \mathfrak{z} ij. of it with \mathfrak{D} i.* of ether on 16th. Frictions with \mathfrak{z} ij. of mercurial ointment were ordered on 18th.

* Vide Appendix, French Measures. — H. I. B.

Opening of the corpse thirty hours after death.

EXTERIOR. — Moderate emaciation; inguinal glands, enlarged and of a violet red color on each side; muscles of body of a natural color and consistence.

HEAD. — Some granulations in the *arachnoid*, in the right occipital region near the falx, where the folds of the membrane adhered together, for the space of an inch and a half. No effusion under the arachnoid; two spoonfuls of serous fluid in each one of the lateral *ventricles*. *Pia mater*, a little firmer than usual; *cortical substance* of the brain of a well-marked, bluish rose color; that of the cerebellum, *corpora striata* and *corpora rhomboidea* of the same color, without any change of consistence.

NECK. — *Pharynx*, *amygdalæ*, *epiglottis* and *larynx*, natural; *trachea*, of a crimson red color, but its mucous membrane was otherwise healthy.

CHEST. — *Heart*, pale and rather soft. *Aorta*, red at its origin, but beyond it had merely some spots of the same color. Partial cellular adhesions between the *lungs* and *pleuræ*; a quart of red, rather turbid serous fluid in the left pleura, a somewhat smaller quantity in the right. Lower lobe of the left lung, heavy, and of a blackish red color externally and internally, throughout the greater part of its substance, and containing a little air in front only; it was firm though not hep- atized in other parts where, however, we could not distinguish in the homogeneous substance any thing but vessels of moderate size, containing a little blood. The same condition, though in a less severe degree and less general, was found in the corresponding lobe of the right lung.

ABDOMEN. — The *intestines*, especially the large, were distended with gases. The *œsophagus* had at its lower part

an ulceration ten lines long, five broad, by which the mucous membrane alone had been destroyed. The *stomach* was of a medium size, and contained a small quantity of turbid greyish fluid, and internally it had two principal shades of color, one reddish, areolated, as it were, occupying half of the great cul-de-sac, the other greyish and bluish, which last became less on approaching the pylorus, where it disappeared entirely. At its large extremity there were six whitish and bluish bands, from four to five inches long and as many broad; the mucous membrane was destroyed, or very thin, and softened in the corresponding parts, and it became gradually thicker and firmer, according to its proximity to a point near the healthy parts. In addition to this thinning in bands, there was another kind of it, viz., an irregularly rounded patch four inches large in the great cul-de-sac. The mucous membrane had in the intervening spaces between these lesions a proper thickness and degree of consistence; it was mamelonated near the great cul-de-sac, and covered with a thick stratum of mucus, where it was greyish. The *small intestine* contained a great quantity of bile of a deep yellow color, tending to brown. Its mucous membrane was very much softened for the space of three feet near the cæcum; it was of a good consistence in other parts. Throughout the whole length of the ileum there was a great number of *elliptical patches*, greyish and bluish, somewhat prominent and ulcerated in the thirty-six inches near the ileo-cæcal valve. Some of them had four or five small ulcers upon them, the others a single one, and in this case the ulceration was extensive, and comprehended almost the whole of the patch. On all, the muscular coat was exposed, somewhat thickened and red; the borders were depressed throughout the whole, or only a part of their circumference. The cellular membrane of the patch, whether ulcerated or not, had

the same color ; it was thickened and a little blood oozed out when an incision was made in it. The intestine had near the ileo-cæcal valve for the space of three inches, and throughout nearly its whole circumference, a grey and bluish color ; with ad many small ulcerations, some deep, others superficial, and the submucous cellular membrane was thicker and more filled with blood than that of the elliptical patches. The *large intestine* contained a moderate quantity of fæcal matter, which was pultaceous throughout the greater part of its extent, moulded in the rectum, and excepting three small ulcers two lines in diameter in the cæcum, by which the muscular coat had been exposed, its mucous membrane was natural. Two *mesenteric glands* near the cæcum were about the size of filberts, and contained some small cavities with pus in them ; the others were bluish and moderately enlarged. The *mesocolic* and *gastro-epiploic* glands had the same color, and these last were of considerable size. The *liver* was pale and flabby ; the *gall-bladder* was healthy ; and it contained a turbid, greyish fluid. The *spleen* was of three times its usual size, bluish and blackish, especially in its interior ; it was of a good consistence ; the cortical substance of the *kidneys* was of a deep red color ;* the rest of the organs were healthy.

This observation, as will be perceived very readily, was as interesting as the last ; it likewise recalled, more than the preceding one did, the *ataxic fever* ; for the diarrhœa was slight, and the nervous symptoms as various as they were grave in

* See Vol. I, page 270. The author refers to this observation and says the kidneys were enlarged, yet there is no notice taken of the enlargement in this account of the case. Probably a word is omitted in the original, for in other respects the two descriptions agree. — H. I. B.

character. In fact, after eight days of pains in the limbs, the patient experienced nausea, pains in the epigastrium and abdomen, tinnitus aurium, pricking sensations in eyes, giddiness; the nausea disappeared on the third day of the disease, and on the fifth somnolency with subsultus tendinum supervened, and spasmodic movements of the hands. On the next day the memory was almost entirely gone; the drowsiness became more marked; the spasms continued, and then delirium came on in addition to these symptoms, which persisted in various degrees until death, and we observed successively contraction of the eyebrows, spasmodic contraction of the lips, stiffness of the arms, and agitation of the lower jaw. Some days before death the patient complained of an unwonted sensation of cold, notwithstanding the heat of the skin; and at the autopsy I found that the cortical substance of the cerebrum and cerebellum, and every part of both which contained a grey substance had a violet rose color of a more or less deep hue; the mucous membrane of the stomach was softened, thinned or destroyed, and there was an ulceration with flattened borders in the small intestine. That is to say, notwithstanding a form very different from usual, the fundamental lesion, the alteration of the elliptical patches of the ileum, was the same as in all the cases I have previously given. I would, nevertheless, observe with respect to these patches that they were of a bluish color, that the borders of the ulcers were depressed, and that, consequently, they were in the condition of those which are following a retrograde course, in which the disease is in a process of cure, and therefore, it is extremely probable that the disease began when the pains in the limbs began, and preceded the development of febrile phenomena and gastric symptoms.

Was the purplish color of the parts occupied by the grey substance connected with the disorder of the cerebral functions?

As the reflections made upon the preceding observation apply to this question, I will not again refer to them, but I would merely mention that this subject was the only one of those who died of typhoid fever in whom I found the substance of the encephalon so generally of a purplish hue, and that one case similar to it was observed among those who died of other acute diseases, and who had not experienced any spasmodic symptoms, and this is sufficient reason why we should not hazard any explanation, and especially is it a reason why we should not answer the proposed question in the affirmative.

It is impossible to consider the condition of the mucous membrane of the stomach as in part the cause of the spasmodic movements, for softening with diminished thickness of the mucous membrane of the stomach occurs, as we have already seen, during the course of many acute diseases, whereas the typhoid affection is almost the only one in which spasms are observed.

It has, doubtless, been remarked that the moment in which the cerebral symptoms began to have some energy, those which were to be referred to the stomach ceased entirely; that there was no vomiting of bile, nothing which announced a serious lesion of the mucous membrane of the stomach, even when the patient was taking tonics. This is a twofold proof of the influence of cerebral symptoms upon the manifestations of those dependent upon the severest lesions, which they mask in nearly all the cases.

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.

The spasmodic symptoms were less numerous, of shorter duration, and much less frequent in these subjects than in those who died. In truth, I observed them in six only out of

fifty-seven patients in whom the disease was more or less *grave*. They therefore must render the prognosis of a case very bad, and in this point of view they are of more importance than any other symptom. There was subsultus tendinum in three patients; cramps in the fourth; spasmodic movements of the lips and lower jaw in the last two. The subsultus lasted during a day in two patients, during five days in the third, on the eighth, tenth and fortieth day of the disease. Cramps were felt between the sixth and tenth days; spasms of the lower jaw on the tenth and fortieth.

It is, moreover, remarkable that in no one of these cases was there permanent stiffness of the muscles of the neck and arms. This fact shows that this symptom is almost constantly mortal.

III. IN PATIENTS AFFECTED WITH OTHER ACUTE DISEASES.

Among these subjects, among whom I do not reckon those affected with *colica pictorum*, four only out of more than five hundred had subsultus tendinum, or cramps. Subsultus occurred on the ninth day of a peritonitis which proved fatal on the eleventh, and in a pneumonic patient who became convalescent at the same time. Cramps occurred, likewise, in two patients affected with enteritis.

If the great difference with regard to spasms, observed between the subjects who die of the typhoid affection and those who recover, makes this symptom very important relatively to prognosis, its extreme infrequency during the course of other acute diseases would make it a useful auxiliary in the diagnosis, if it should begin to appear during the course of an acute disease, the character of which had been previously doubtful. Spasmodic movements or rigidity of the muscles form, there-

fore, like drowsiness, one of the most important signs in the typhoid affection, at the same time that they indicate that if the disorder in the cerebral functions is generally in proportion to the febrile excitement, it receives important modifications according to the organ affected.

SEC. 5. — Strength.

I. IN PATIENTS WHO DIED OF THE TYPHOID AFFECTION.

Debility is one of the first effects of any acute disease, but it occurs in no affection so severely as in the typhoid affection, therefore this symptom is one of its most important characteristics.

Out of twenty-nine subjects from whom I was able to learn the chief circumstances in relation to this point, ten were obliged to give up work on the day the affection began; another on the second; four on the third; and three of the first took to their beds on the first day of the disease (Obs. 15, 36, 53).

Whatever was the period at which the patients either quitted work or took to their beds, the debility became soon very marked; it was difficult for them to attend to their own necessities, or even to make any movement so as to change their position; but they remained always in the same place and posture, unless when moved by the assistants who were obliged to do so in order to avoid the evil effects of compression. When in this condition they resembled perfectly inert bodies. One of them who died on the twenty-fifth day of the disease, and who had delirium only during the last, was so feeble and so averse to any motion after the eighteenth day, that he was unwilling to be raised up in bed. This extreme prostration occurred on the seventeenth day in another patient who died on the twenty-eighth (Obs. 39); in two patients who

died on the eighth, the arms were paralyzed, as it were, on the seventh (Obs. 11, 13). A woman who was thus so very feeble as to appear paralyzed, and who died on the thirteenth, and suffered her arms to be pinched on the twelfth, without giving any signs of pain, told me the next day that she remembered very well having been pinched, and if she did not withdraw her arm it was because she had not the power so to do.

However, although the greatest degree of debility accompanied generally the typhoid affection, there were some very remarkable exceptions to this law. Thus, one patient, whose history I shall shortly give, and who died on the twenty-fourth day, was able to work during fifteen of them, and got out of bed on the day of his death (Obs. 37); one of those who died on the eighth was able to walk during the first four. Another who died on the fourteenth day came to the hospital on foot on the tenth. A fourth was able to raise himself without assistance, and sat up in bed four days before death, and we shall see among the latent cases still more remarkable examples of this fact.

Syncope, the cause of which in some cases was perhaps the same as that which gave rise to the general debility, occurred on the eleventh day of disease in one subject who did not die until the thirty-fifth day (Obs. 14).

But to what cause shall we refer the extreme debility observed in the majority of the cases of the typhoid affection? When it occurred at a late period of the disease we could, to a certain extent, explain it by the condition of the organs and the long disorder of the functions of the body, although so great a prostration rarely occurs in the course of other acute diseases, even during the last days of existence. But in those cases in which there was considerable debility from the com-

mencement of the affection, we could not give this explanation ; we could not attribute it to the diarrhœa which did not then exist, or which was just commencing, nor to the abdominal pains, which were then very slight ; nor to the cephalalgia, which was generally dull, and the severest attacks of which in other acute diseases do not produce a like diminution of strength ; nor to any appreciable lesion of the brain, for the reason previously stated ; nor to the state of the mucous membrane of the stomach, which was healthy in many cases in which there was extreme prostration of strength, and whose alteration, moreover, commenced only at a somewhat remote period after the disease began ; it is, therefore, necessary, in order to obtain an explanation of this symptom, to recur to the special lesion of the small intestine, which was just beginning, as acting sympathetically upon the brain ; or still farther, to the cause, whatever it may be, which produces this lesion.

I do not speak of the softening of the heart, of the liver, and of the spleen, because these alterations occur only at a somewhat late period of the disease, and are, like that of the stomach, very frequent during other acute diseases. Moreover, out of twelve subjects who died between the eighth and twenty-eighth days of the disease, who had the liver and heart healthy, the spleen moderately softened and twice as large as usual, the debility was either moderate or severe in degree in an equal number of cases.

Let us now pass to the history of an individual in whom the debility came on at a late period of the disease.

THIRTY-SEVENTH OBSERVATION.

Diminished appetite ; dejections, not frequent ; pains in the limbs ; some chills during the first eight days ; afterwards, frequent dejections ; pains in the abdomen ; complete anorexia ; considerable debility during the last week ; slight delirium ; death on the *twenty-fourth day*. Patches of the ileum, red, softened, some ulcerated, others not so ; mesenteric glands, corresponding to them, red, enlarged, very much softened, &c.

A VENDER of lemonade, æt. 28, of a moderately strong constitution, habitually in good health, of a sober, regular mode of life, and working generally eighteen hours a day, was admitted to the hospital of La Charité, August 5th, 1822. He had been at Paris four years, and had been ill fifteen days, and had worked until the time of his entrance into the hospital, to which he was brought in a carriage because he felt unable to walk there.

During the first eight days headache, frequent dreams, pains in the limbs ; mouth had a bitter and pasty taste ; considerable diminution of appetite, which, however, did not prevent the patient from eating nearly as much as usual ; abdomen, not pained by pressure ; dejections, infrequent ; chills at intervals. After these eight days had passed, a purgative contained in brandy caused some little trouble at first, but two hours afterwards it was followed by violent colics and numerous dejections, twenty in number. From that time the diarrhœa was considerable, the abdomen painful on the left side when the patient resisted the inclination he had to go to stool ; complete anorexia ; the epigastrium always allowed of pressure being made upon it without suffering to the patient ; the cephalalgia ceased, patient experienced dazzling sensations, and at times tinnitus aurium, but he had no cough, nausea,

chills, nor soreness of the throat. Soup was his only food, and for drink an infusion of lime tree flowers (*tilleul*) or weak wine and water.

August 6th; patient was able to lie in any posture, and was not desirous of taking one more than another; face, purplish; eyes, rather brilliant, slight rose tint about the cornea; memory, exact; answers, clear and precise; no headache nor tinnitus aurium, nor pains in the limbs; intense thirst; breath, foetid; tongue, of a rose hue at the circumference, yellowish in centre; slight meteorism; pains at the left side of the abdomen; ten dejections during the night; three rose-colored lenticular spots upon the abdomen; skin, very hot and dry, but notwithstanding this circumstance the patient was very sensible to cold; pulse, rather full, equal, at eighty; respiration, slightly accelerated; very little debility and uncomfortable feelings; patient complained merely of his bowels.

(Fifteen leeches to anus; enema of flaxseed; ptisan composed of barley water and *sir. tart.*, three times.)

Considerable loss of blood; fifteen dejections during the succeeding twenty-four hours; a little sleep and slight sweat during the night. On the next day the face was pale; there was slight stupor; increase of debility; the mind was perfect; abdomen, not pained by pressure, meteorised; rose-colored lenticular spots paler than on 6th; pulse, rather soft; increased thirst.

(Same prescription with the exception of the leeches.)

On the 8th, face, somewhat red and purplish, aspect indifferent; answers, correct; remainder of the symptoms as on the preceding day.

(Fifteen leeches to the anus.)

From 9th to 12th. Same degree of stupor; face, pale or of a leaden hue; answers, correct and sufficiently prompt;

deafness, at first slight, afterwards considerable ; increasing debility ; tongue, dry, afterwards yellowish and coated in the centre on 11th ; considerable meteorism ; abdomen not pained by pressure ; numerous dejections without trace of mucus or blood ; skin, moderately hot ; pulse, somewhat accelerated, rather large ; cough, rare.

The drowsiness continued almost constantly during the 11th, and during the night the patient got out of bed and ran about the ward. On the next day, while in a profound stupor, the patient assured me that he felt no pain ; his face was rather livid, his words almost unintelligible, the tongue dry and brownish, the respiration, high and frequent ; respiratory murmur, without any mixture of râle ; the pulse was sufficiently firm, regular, at a hundred.

There was the same agitation during this night as during the previous one, and on the 14th, at the morning visit, the somnolency was constant, the patient was in the same apparent condition as before ; he got out of bed to go to the close stool, said he felt well, and one hour afterwards he expired.

Opening of the corpse twenty-three hours after death.

EXTERIOR. — No dark colored wheals as from blows save at the posterior part of the body.

HEAD. — Some adhesions between the folds of the *arachnoid* near the median line, in the spot where this membrane was thickened and opaque. Traces of effusion under the arachnoid ; two small spoonfuls of serous fluid in each of the lateral *ventricles* ; five in the lower occipital fossæ ; *cerebrum* and *cerebellum*, a little injected, of good consistence.

CHEST. — Three ounces of bloody serous fluid in the *pericardium* ; white patches upon the anterior part of the *heart*, the parietes of which were thin and very much softened. Some

bands of a deep red color along the *aorta*. Twelve ounces of very red serous fluid in the cavity of the *right* pleura; general cellular adhesions of the left. The *lungs* were light, somewhat soft, and had rather a bright red color in front, and behind a much deeper tint internally as well as externally. Upon these two colors there were, likewise, blackish spots, of roundish forms, two lines in diameter, without any appreciable change in the density of the pulmonary texture of the same parts.

ABDOMEN. — The *peritoneum* had lost its usual brilliancy. The *stomach* contained rather a large quantity of thin liquid. Its mucous membrane was shaded with rose and grey color, and was yellowish in some points; it was of a good consistence. That of the small intestine, save in a slight softening and in relation to points to be mentioned below, had nothing remarkable in its appearance. The *elliptical patches* of the ileum were numerous in its last two thirds; they were red, large and thickened in the twenty inches nearest the *cæcum*. Their prominence was owing principally to the mucous membrane, which generally was more than a line thick in this part, and was extremely softened and destroyed over a small extent of surface on the parts nearest the *cæcum*. The corresponding submucous cellular membrane had the same color and very nearly an equal degree of thickness. Between the patches there were others which were of irregular shapes, and much smaller, and some solitary crypts, flattened and marked with points in their centre. Some of the elliptical patches which preceded those which were red and thickened were greyish and bluish, somewhat thickened, and on them there were some angular ulcerations. The *large intestine* was very much meteorised as far as the sigmoid flexure, and contained some greyish, firm parcels

of fæcal matter in a liquid which was moderately abundant. The mucous membrane of the cæcum and left half of the transverse colon, even to the rectum, was red and very much softened. There were, likewise, some small ulcerations in the cæcum. The *mesenteric glands* were red, enlarged and very soft in the vicinity of the latter; the *liver* was healthy; the *bile* in the gall-bladder abundant and thin; the *spleen* was three times as large as usual, and so soft that the slightest pressure of the finger was sufficient to penetrate its substance; the *kidneys* were red and of good consistence; the *pancreas* was very much injected.

Thus, although the disease proved fatal on the twenty-fourth day of the disease, the patient was able to continue a fatiguing profession during the first two weeks; his strength was likewise not so much diminished on the last day as to prevent his attending to his wants, and an hour and a half before death he got out of bed to go to the close stool. Whatever may be our view of the origin of the disease, it is certain that it differed very much from the most common cases of the affection, with regard to the strength of the patient.

We may, in fact, make two suppositions in relation to the time at which the disease began, viz., whether it commenced when the appetite began to fail, or whether it did not begin until after the administration of the purgative which was followed by diarrhœa. And this much may be urged in favor of the former [latter?] hypothesis, viz., no symptom characteristic of the typhoid affection occurred before the administration of the purgative. But the reasons which are in favor of the latter [former?], and which seem to me to be much more conclusive, are the following, viz., if before the administering of the purgative the symptoms experienced by the pa-

tient had nothing peculiar in them, still they were not in opposition to what experience tells us of the origin of the typhoid affection in certain cases; moreover, after the purgative, when the diarrhœa occurred, the general character of the disease continued the same, only there was a new symptom added to some previously existing, and this new symptom seemed to fix the seat of the others without indicating their nature. The truly characteristic symptoms manifested themselves during the last eight days only of life, so that if we cannot consider the disease as having commenced when the appetite became less, or when there were pains in the limbs, we cannot suppose it began at a period anterior to the admission of the patient into the hospital. However, the symptoms of the first eight days had a cause, and when we consider that the most serious, and, doubtless, the oldest lesion, was that of the elliptical patches of the ileum, we cannot prevent ourselves from admitting that they were the seat of some morbid change during the eight days which preceded the administration of the purgative.

I have not supposed it possible that a purgative could produce the alteration of the elliptical patches of the small intestine, because I have observed several times hypercatharsis in consequence of the long-continued use of Leroy's remedy, without there being any thing in the symptoms to announce such an influence. But we may suppose that this purgative had much influence upon the result of the disease, and that without it death would not have occurred. Without wishing fully to deny such an effect, I would recall to the mind of the reader what we learned previously (pages 24, 25, 26), viz., that purgatives, whatever they may be, if they are not repeated, do not produce permanent diarrhœa, save in the cases in which there is an eminent predisposition on the part of the patient to have looseness of the bowels. Therefore, we must

admit that in the present instance there was very marked predisposition, since the diarrhœa was considerable and uninterrupted from the time of the administration of the purgative ; also, that frequently a similar diarrhœa succeeds in the typhoid affection to a constipation of many days duration, without any purgative having been administered, and thus the influence of that given in the present case was, doubtless, much less than one would have supposed at first sight.

This case, moreover, we must admit, was one of those which might most easily deceive the sagacity of the observer, either before or after the administration of the purgative previously to the entrance of the patient into the hospital ; the anorexia, pains in the limbs, slight diminution of strength before or after the diarrhœa, naturally not leading one to suspect any grave disease. In a similar case, however, we must remember that a single purgative, followed by an abundant diarrhœa, announces a very great predisposition, and that such an effect is much more liable to happen at the commencement of the typhoid affection than at that of any other.

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.

The diminution of strength was not less remarkable in those subjects in whom the disease was *severe* than in those who died. Out of forty-seven patients from whom I was able to learn any thing definite in relation to this point, seven had been confined to the bed from the first day of the disease ; nine merely quitted work at that period, two on the second day ; that is to say, a third part of the subjects experienced considerable debility and depression of mind from the commencement. This cannot be explained any more than in the cases which were fatal by reference of it to the diarrhœa, which either had not begun or was just commencing, to the

abdominal pains, to gastric symptoms of any moment, or to extreme lassitude of the limbs, which is observed in simple painful weariness (courbature). Therefore, in these individuals, as in those who died, we can refer this debility only to the commencing specific disease of the elliptical patches, or to the same cause to which we must refer this last. A few patients were confined to the bed between the tenth and twentieth days of the disease only, and one began to lose his strength so as to wish repose from labor not before the twenty-sixth day. After a rather violent commencement, the affection stopped in its course so that six days after the disease began the patient re-commenced, though but imperfectly, his occupation.

The diminution of strength was considerable and of a long duration, in nearly all the patients who were obliged to go to bed at the commencement of the disease, but it arrived at its *maximum* at very various epochs, between the tenth and thirtieth days of the disease. The debility was not less in degree in many who did not leave work, or at least did not confine themselves to their bed until some days after the first appearance of the disease, so that, at a certain period of the affection, many seemed as if paralyzed, and allowed their limbs to fall when unsupported, as if obedient entirely to the law of gravity, and they allowed themselves to be turned about like inert bodies. In some cases, in addition to this extreme debility, there was very great paleness of the face, and the patients apparently exhausted, seemed about to expire. This condition was observed in a most marked degree in a young girl seventeen years and a half old, of a rather delicate constitution. One would have said during two days, the nineteenth and twentieth of the disease, that she was very near death, for she seemed to have but a breath of life remaining in her, and nothing could explain this state of things, neither

the diarrhœa, which had been slight, nor the pains in the abdomen, nor the treatment, which had been neither very debilitating nor of a tonic nature, no venesection having been performed; nor was the meteorism able to explain the difficulty, for it existed but slightly. This great debility diminished only very slowly, and at the time that convalescence appeared to make very rapid progress the patient had a double pneumonia, limited to the posterior part of the lungs. This caused but a slight re-action; it ran very slowly through its course, and was accompanied by considerable œdema of the lower extremities, especially of that of the left side, so that the patient was not completely re-established until after a five month's sojourn in the hospital.

The debility was slight in the thirty-one cases in which the disease was *slight*, and it was principally according to the severity of this symptom that I divided the patients into two groups. Nevertheless, the loss of strength in these thirty-one subjects was generally much greater than what would have occurred in any other disease of as inflammatory a character as fever.

III. IN PATIENTS WHO DIED OF OTHER ACUTE DISEASES.

Among those affected with pneumonia the depression of strength was generally in proportion to the extent of the disease, but in none was it so severe as that which I have described above. Diarrhœa, when it occurred, increased much the debility, which was considerable in two subjects in whom the mucous membrane of the stomach and intestines was seriously altered.

The debility in the course of other acute disease had nothing peculiar about it save in one case of erysipelas of the

lower extremities, in which it was great from the commencement of the disease.

IV. IN PATIENTS WHO RECOVERED FROM OTHER ACUTE DISEASES.

There was considerable debility in four out of fifty-seven *pneumonic* patients who recovered. It was almost perfectly simple in one ; it was complicated with diarrhœa or gastric symptoms in the others, when the diminution of strength was the greatest. The patient was affected with great depression of spirits, and had a perfectly negligent air in these three cases, and the two patients who had gastric symptoms experienced, likewise, on the sixth day of the disease syncope on going to stool.

Three subjects out of eighteen affected with *scarlatina* experienced on the fifth and sixth days of the disease a considerable depression of strength, without its being possible to explain it by the diarrhœa or any gastric symptom. A similar depression of strength occurred in a case of *measles*, at the commencement of the disease, during four successive days, and it yielded the moment the alvine discharges became liquid and frequent. If it was impossible to explain it, yet its severity at the commencement must have removed all suspicion of typhoid affection. I would make the same remark in relation to two subjects who presented the same diminution of strength on the first day of *angina gutturalis*, and of a third in whom the prostration was extreme during the first three days of an *urticaria*, in which neither gastric symptoms nor diarrhœa occurred as complication.

In *enteritis*, properly so called, this debility could not be compared with that which accompanies the typhoid affection, even when it was very severe and the dejections very numerous. Likewise, there was considerable debility in one subject in

whom there were from twenty to thirty dejections daily during the first six days of the disease, yet this patient left the hospital on the eleventh from its commencement. And this case is not an exception, for five other patients who had dejections nearly as frequently, and an almost equal degree of debility for some days, went out of the hospital between the fourteenth and eighteenth days, in a very good state of health. Three of them went on foot and had some gastric symptoms.

Debility, therefore, was not only much greater during the course of the typhoid affection than of any other, but it was, likewise, of much longer duration.

SEC. 7. — Pains and Œdema of the Limbs.

I. IN PATIENTS AFFECTED WITH THE TYPHOID DISEASE.

With but two exceptions, all the individuals from whom I was able to obtain exact information with respect to the condition of the limbs at a period anterior to their admission into the hospital, (and these were the most numerous), suffered from pains in the limbs from the beginning of the affection, whatever was the result of it. These pains were generally very slight, and were not in any case comparable with those which occur in cases of painful fatigue (*courbature*), and were experienced to any degree in the lower extremities in but one patient only of those who died, and this patient was much troubled in walking, and he compared the pains to a feeling of numbness (Obs. 21). In not a single case did they have a rheumatic character. The same individuals who had pains in the limbs experienced some likewise generally in the loins.

I observed *œdema* of the lower extremities in a young girl only in whom the disease terminated favorably, during the

course of a very chronic double pneumonia, which came on at the moment when the patient, who had become very feeble, appeared to be beginning to be convalescent.

II. IN PATIENTS WHO DIED OF OTHER ACUTE DISEASES.

Pains in the limbs occurred in four-fifths of the patients affected with pneumonia, and three of them who died on the eighth, twentieth and fortieth days of the disease had œdema of the lower extremities two or three days before death. These patients were from fifty to sixty years of age, and in one of them the heart was slightly hypertrophied. If the age and condition of the heart had some influence upon this symptom, the organ which was chiefly affected doubtless must have had much more, and the fact given above supports this view of the case.

In patients who died of other diseases, pains in the loins and limbs were nearly as frequent as in the pneumonic patients, and in two cases, one of scarlatina, the other of pericarditis, there was œdema of the abdominal extremities. The heart was healthy, the lungs did not present any very remarkable change in the individual who died of scarlatina.

III. IN PATIENTS WHO RECOVERED FROM OTHER ACUTE DISEASES.

The majority of the *pneumonic* patients had pains in the loins and limbs ; these pains were very severe in the thighs of one of the subjects, and in the knees of two others. In one of these last the pain was accompanied by considerable swelling without redness, which continued from the eleventh until the fifteenth day of the affection, after which the same symptom occurred in the right hand during the same length of time. The pains were not less severe in the knees of the other patients

in whom they had been preceded during two days with evidently rheumatic pains in the neck. There was no swelling.

These two cases, and another which I shall cite very shortly, are the only ones in which I observed evidently rheumatic pains as complications during the course of acute disease. The extreme infrequency, shown by this circumstance, of the occurrence of a disease, otherwise so common, appears to me to be very remarkable, and forms a new character to be added to those which prove that there is something in rheumatism, which marks it as an affection as distinct from others as its nature is difficult to be appreciated.

One patient in whom the disease continued a great while, had œdema of the legs on the eighth day of the affection, and it continued many weeks. This patient, aged forty, had experienced no symptoms of disease of the heart, and, therefore, this case is a new proof of the influence which derangement in the circulation of the blood during the course of pneumonia exerts upon œdema.

In a case of *erysipelas* of the lower extremities there were rheumatic pains, first in the left shoulder, which lasted eight days, then in the knees, which were swollen but not red.

More than half of the subjects affected with *pulmonary catarrh* had pains, as if from being bruised, in the limbs, and two of them had œdema of the legs during some time.

These pains were rather less frequent in subjects affected with *enteritis* than in the preceding, so that they occurred in half of the cases only, whatever was the severity of the affection. They were very severe in the wrists in two patients, without being accompanied by redness or swelling.

Thus out of seven hundred individuals attacked with acute diseases, and a hundred and thirty of whom died, eight only

had œdema of the legs, six during the course of pneumonia or very severe bronchitis, one during that of a pericarditis, the last during an attack of scarlatina. A slight œdema in a patient affected with acute disease, in whom there are no peculiar symptoms to be referred to the lungs and heart, ought, therefore, to make us turn our attention to these organs.

ARTICLE VIII.

SYMPTOMS AFFORDED BY THE ORGANS OF SENSE.

Epistaxis; condition of the Conjunctivæ; of the Ears and Skin.

SEC. 1. — Epistaxis.

I. IN PATIENTS WHO DIED OF THE TYPHOID AFFECTION.

Whether I was unable to learn any thing very exact about this symptom, or whether I neglected obtaining information respecting it, it is certain that mention is made of it in the cases of sixteen patients only, five of whom did not have it. This point I cannot affirm positively to be as I have stated, for my questions upon the subject were not often enough repeated.

Whatever may be the truth of the case, the epistaxis varied in its time of commencement, its time of return, and in the quantity of the blood which was exhaled. It occurred but once in five cases, but it returned several times in the others, two, three, four and six days in succession, or at intervals more or less distant from one another; in some patients it occurred several times during the same day (Obs. 4); and almost always without the slightest alleviation of the symptoms. It commenced on the first day of the disease in three cases in

which it returned several times (Obs. 4, 16, 39) ; between the fourth and the fifteenth in the others.

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.

Out of thirty-four subjects in whom the disease was *severe*, and of whom I made inquiries relatively to the epistaxis, twenty-seven experienced it once or frequently, and this proportion may be considered as exact, for all these patients were frequently questioned upon the subject.

As in those who died, the epistaxis was variable in its commencement, its returns and its abundance. With respect to its commencement, it began in three cases with the first symptoms ; on the fourth day in five ; between the fifth and tenth in four ; between the tenth and fifteenth in five ; between the fifteenth and twentieth in six ; still later in four more in whom the disease went on very slowly. With respect to its frequency and its periods of return, it occurred once only in ten patients ; it occurred five, six, eight, ten, fifteen days in succession in nine, frequently at many different times during the same day ; and two or three times in the other cases at more or less distant intervals. Moreover, there existed no relation between the abundance and the frequency of the epistaxis, but there was commonly considerable diarrhœa in the cases in which the epistaxis occurred the greatest number of times.

This hæmorrhage was much less frequent in those in whom the disease was *slight*, it having occurred in half of the cases only, or in eleven out of twenty-four subjects who were questioned particularly upon this point.

III. IN PATIENTS WHO RECOVERED FROM OTHER ACUTE DISEASES.

Eight *pneumonic* patients out of fifty-seven had epistaxis ; one of them on the first day of the disease ; three on the

second; the remainder between the fourth and the eleventh. It occurred but once in three subjects; it returned three, four, six, eight days in succession in the others, and was sometimes very abundant.

I did not observe it in any case of *variola*; it occurred in two cases of *scarlatina*, on the sixth and seventh days in one, on the eleventh in the other; in an individual affected with *measles* on the eighth day of the disease; on the tenth of an *erysipelas of the face*; in six of the thirty-nine subjects affected with *angina gutturalis*, between the second and twelfth days of the disease; on the eighth in a case of *zona*, in which case a headache, which had existed several days, ceased at the same time; in four subjects affected with *rheumatism* between the second and thirtieth days; in five cases of *pulmonary catarrh*, once or frequently, on the first day of the disease in two individuals; at a more or less distant period from it in the others. Finally, epistaxis occurred in four subjects affected with *enteritis*, properly so called, between the first and tenth days of the disease.

Although I omitted to ask of many individuals affected with the diseases we have just passed in review, whether they had had epistaxis, so that the numbers I have given may not be accurate, still, the whole of the facts when taken together are interesting, inasmuch as they demonstrate that epistaxis follows the same march that all the accessory lesions do which come on during the course of acute diseases; it likewise occurs like them less frequently at the commencement than at a late period of the affection, and hence we cannot regard it as different from them, and to suppose it to be critical would make it necessary for us to give this character to all the other secondary symptoms, and all the organic lesions of which the

symptoms are merely the effect. It may be said that epistaxis relieves the headache, but what does this fact prove? Because the pain of phlegmon is relieved by suppuration, must we call this last a critical discharge? And is there not a perfect analogy existing between the headache which precedes an epistaxis, and the pain which precedes suppuration of the cellular membrane? In both cases is there not a phenomenon which may be divided into different periods, one of which, the suppuration, or the flowing of the blood, may not take place?

SEC. 2. — Condition of the Eyes.

I shall give an account in this chapter of the more or less vivid redness of the conjunctivæ, pains in eyes and troubled vision.

I. IN PATIENTS WHO DIED OF THE TYPHOID AFFECTION.

The conjunctivæ were more or less red at various periods of the disease in a little more than half of the cases, or in sixteen out of twenty-seven individuals in whom the condition of the eyes was noted with care. The color was in four of them of a very delicate rose hue, uniform and without any distinct vessels; in the others the injection was ordinarily slight, sometimes not uniform, and occurred in the conjunctiva of both eyes. This redness commenced at various periods, more generally towards the end than at the commencement of the disease. It occurred between the third and thirteenth days in three subjects in whom the affection lasted from three to five weeks, from three to fifteen days before death in other cases; it increased in some individuals, was stationary in others, and generally accompanied by a secretion of mucus which kept

the lids fastened together, or the eyes in a lachrymose state, which last I never observed save in two cases.

The eyes smarted, and were more or less painful in six patients, three of whom had the conjunctivæ injected. What was the cause of the pain in the others? Whatever was its cause this fact supports what I have stated many times in regard to the difficulty there is in deciding upon the nature and seat of pain in many cases.

Dazzling sensations were experienced by nearly all the patients when they arose or sat up in bed, but four of them had constantly indistinct vision; they saw only as if through a cloud, ten or twelve days before death, and at nearly an equal length of time from the commencement of the disease.

Four patients had the eyelids very strongly contracted during the last days of existence, so that it was difficult to separate them even mechanically. This closing of the eyelids occurred fifteen days in succession, in a patient in whom the brain was less injected than usual (Obs. 30). Delirium existed in different degrees in each one of these cases, and the contraction of the eyelids was probably less the effect of sensibility of the eyes to the light than a spasmodic phenomenon analogous to the spasms, or the permanent contraction of the muscles of the limbs which occurred in some of these subjects.

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.

The eyes were very nearly in the same state in these patients as in those who died. There was nothing remarkable about them in a third part of the cases, or in ten out of thirty-three patients in whom I examined them with care; they were more or less injected, and of a uniform rose hue in the others. This condition commenced generally after the tenth day; in

fact, I never observed it on the sixth and seventh save in three cases. It lasted from two to eight days. Seven, likewise, had smarting of them, three of whom had redness of the conjunctivæ. In another there was indistinct vision, even while in bed, during the whole of the fourth week of the disease, and in no one was there that permanent closing of the eyes which was difficult to be overcome, which was observed in many cases in which the termination of the disease was fatal. If we remember that the spasmodic rigidity of the limbs did not occur in the same subjects, we shall be convinced that the contraction of the muscles of the eyelids and the rigidity of the arms depended upon one and the same cause, and that both are symptoms equally fatal.

III. IN PATIENTS AFFECTED WITH OTHER ACUTE DISEASES.

The eyes were more or less red and painful in two cases of pneumonia, from which recovery took place on the third and sixth days of the disease. Their condition was not observed in the other subjects, and although I regret this omission, still, I conclude that it occurred only because redness really did not exist or was very slight.

SEC. 3. — Condition of the Ear.

Deafness ; buzzing sounds, tinnitus aurium ; pains ; inflammation of the external passage of the ear.

I. IN PATIENTS WHO DIED OF THE TYPHOID AFFECTION.

Out of thirty subjects in whom the symptoms in relation to the ear were noticed with care, eleven had buzzing sounds in them, twenty had more or less deafness ; two had pains in them.

Buzzing, or tinnitus aurium occurred in the majority of the cases without deafness ; it went on gradually increasing

during the course of the disease in many subjects; it commenced with the first symptoms in four; afterwards at various epochs nearer the time of commencement than that of the termination of the disease, save in the patients who died between the eighth and fifteenth days of the disease.

Deafness occurred in no subjects with the first symptoms. It began in the middle or during the last days of the disease, nearly an equal number for the two periods being among those who died between the twentieth and thirtieth days of the disease. Although slight at first, it afterwards made rapid progress, and was so severe in three patients that it was almost impossible to make them hear at all. One of them had no delirium.

Pains in the ear occurred for a short time in the middle of the disease in two subjects (Obs. 39, 45).

I did not observe evident *inflammation* of the meatus externus, or purulent discharge from it in a single case, but I do not doubt that this purulent discharge occurred many times, for some of the subjects who recovered had it, and the accessory symptoms were less frequent and less severe in the latter than in the former. We readily conceive, however, that many of these symptoms, commencing at a later period of the disease, in the midst of much graver symptoms, and in patients who are often in a very filthy condition, might escape the notice of the observer. And as, however, the exact knowledge of diseases supposes that of all the lesions and of all the symptoms which occur during their course, it follows that we cannot pay too much attention to any organs at any period of the disease. The reason why I insist so strongly upon this point, at which I have arrived many times is, that I feel the great necessity of attention to it.

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.

Out of forty-five subjects in whom the disease was *grave*, and in whom the condition of the ear was accurately determined upon, nineteen had buzzing ; thirty-three had more or less deafness ; seven had pains in the ears ; four had a purulent discharge from the external meatus.

As in the subjects who died, the *buzzing* occurred in the majority of the cases without deafness ; it came on three times with the first symptoms ; it preceded the deafness in those subjects who experienced both symptoms, and lasted from four to twenty days.

Deafness occurred at the commencement of the disease in two subjects who did not have more delirium or more cephalalgia than they had in whom the same condition came on much later, that is to say, between the eighth and twentieth days of the disease. It was, to a certain extent, transitory, or it lasted from one to two days only in some patients, and the deafness was prolonged from four to twenty in the others. At first it was slight, but it increased gradually and decreased in the same ratio, save in one case in which this diminution was rapid. Some patients had alternations of increase and diminution, which it was impossible to explain by means of any corresponding variations in the cerebral symptoms, or in the state of the circulation, and it was so severe during many days in succession in some patients, that it was impossible to make one's self heard by any means whatever. Extreme deafness, adds, therefore, nothing to the gravity of the prognosis, and in this respect it differs very much from spasms, and especially from permanent rigidity of the limbs.

Out of seven patients who had *pains in the ear*, three had evidently inflammation of the meatus externus. In these last the pain began late in the disease, but in the others it

commenced between the tenth and fifteenth days. It was generally slight, or lasted but a short time, but it continued in one case two weeks.

Suppuration occurred at an advanced period only of the disease, never before the twenty-second day from the commencement; and on the thirtieth and fortieth only in two cases in which the disease was very chronic in its nature. Its mean duration was twenty days.

The ear, therefore, was subject to the law which governed the majority of the organs in which inflammation occurred more or less frequently during the course of the typhoid affection, or of other acute diseases.

As to those cases in which the pains were neither accompanied nor followed by a discharge from the external meatus, if we cannot say that there was inflammation in any, at least, the fact of its existence, seems nearly demonstrable in the case in which the pain lasted during fifteen days. For how can we conceive of an inflammatory pain of this duration without suppuration?

The same phenomena occurred in those patients in whom the affection was *slight*, but in a somewhat smaller proportion, so that out of twenty-four of them in whom the condition of the ear was examined with care, fourteen only experienced some of the symptoms which have been indicated. Six had tinnitus aurium, one of them on the first day of the disease; five had deafness generally to a slight degree. And in a case in which the deafness lasted twenty days it commenced with the disease. Three subjects complained of pains in the external auditory passage, and in one of them they were followed after two days duration, on the fourteenth day of the disease, by a discharge of pus which continued during a week.

Thus we found always the same secondary lesions in similar diseases, and in proportion to the intensity of the febrile excitement.

III. IN PATIENTS WHO RECOVERED FROM OTHER ACUTE DISEASES.

A *pneumonic* patient had buzzing, or noise in his ears, from the first to the third day of the disease. I never observed it in subjects affected with *variola*. There was a discharge of pus by the external auditory passage from the fourth day in a case of *scarlatina*. An individual affected with *measles* had buzzing or ringing in ears. It was much more common in the course of *angina gutturalis*, and seventeen out of the thirty-nine subjects affected with this disease had pains in the ears, which might be attributed to the proximity of the principal disease. If these symptoms failed to appear in measles and scarlatina, in which sore throat is so frequent, it is, doubtless, because this latter affection is more slight when it occurs as a complication than when it occurs as an idiopathic affection. It is, however, remarkable that there was in one patient only of these seventeen evident inflammation, recognised by the discharge of pus from the external passage of the ear. This seems to me to be a new proof of the connexion existing between the febrile excitement and inflammation of the ear, since, notwithstanding the neighborhood of the principal disease, the proportion of cases of otitis is much less here than in subjects affected with the typhoid disease in its severe forms. One individual affected with *rheumatism* had some deafness; another had an external otitis at a late period of the disease. Buzzing and pains in the ear occurred in two cases of *pulmonary catarrh*; buzzing in one of the eighty-four subjects affected with *enteritis*, properly so called. So that in proportion as we advance in the study of symptoms, it seems

that no disease differs more from the typhoid affection than enteritis, save in the number of dejections.

SEC. 4. — Skin.

Rose-colored lenticular spots ; sudamina ; erysipelas ; various eruptions ; wounds caused by blistering plasters.

1st. Rose-colored, lenticular Spots.

I. IN PATIENTS WHO DIED OF THE TYPHOID DISEASE.

I observed this eruption in twenty-six of thirty-five patients in whom I sought for it, and I cannot tell whether it occurred in some of the others, inasmuch as many of these patients came to the hospital after the twenty-fourth day of the disease, at a period when, perhaps, the spots had disappeared.

They were few in number in three quarters of the patients (eighteen out of twenty-six) and then they were found scattered over the abdomen and chest; sometimes they were limited to the abdomen, where only five or six were seen in certain subjects. When rather numerous they were found not merely upon the abdomen and chest, but, likewise, upon the limbs, and in one patient I found them upon the face. They were found on the back part of the trunk of two patients whose backs I examined; therefore we may presume that they were not less frequent there than at the anterior part of the body. Almost always more were discovered upon the abdomen than upon the chest.

In the cases in which they were numerous they developed themselves gradually during the space of three, four, five days, and sometimes more. They disappeared, likewise, by degrees, rarely all at the same time and promptly, and their red

color grew paler every day. When they were few in number I have seen them disappear, after having lasted two days, to be replaced by others which disappeared as quickly. With the exception of two subjects they continued always of the same size.

Their time of commencement varied. In three individuals who came under my observation on the fourth and fifth days of the disease, they did not occur before the sixth and seventh; they existed on the eighth day in six subjects who came under my observation on that day. I saw them commence on the ninth and eleventh days in many cases, and in one not until the thirty-fifth [thirty-third?] (Obs. 14). They were observed in the majority of the patients who were brought to the hospital after the tenth day of the disease, so that it is impossible to know what to depend upon in relation to these patients in reference to the present question. But we shall not be far from the truth if we admit that the eruption of rose-colored lenticular spots occurred between the sixth and ninth days of the disease in half of the cases.

Some circumstances foreign to the disease, a bath, for example, seemed favorable to the development of these spots; at least the following observation seems to show this.

THIRTY-EIGHTH OBSERVATION.

Cephalalgia; dull pains in limbs; fever; diarrhœa on the fifth, violent delirium, which was constant afterwards; spasmodic movements of the limbs; copious eruption of rose-colored, lenticular spots coming on after a bath; death on *eleventh day*. Elliptical patches of the ileum, thickened, hard, some ulcerated, others not so; corresponding mesenteric glands, enlarged, reddened, softened; cystic duct, obliterated, &c.

A YOUNG man, æt. 16, of a well-developed frame and sufficiently strong constitution, who had been at Paris three months, was brought to the hospital of La Charité, Nov. 12th, 1822, in violent delirium. Dr. Hervez, who had been his attending physician, told me that he had been ill eight days, that the affection had commenced with headache, dull pains, as if from being bruised in limbs and loins; rather severe fever, and that delirium and diarrhœa had been constant during the three days before entrance. During the night of 12th to 13th, the patient uttered loud cries, and used abusive language towards the attending sisters of charity. On 13th, at the morning visit, he answered to those who asked his name, that he did not know; his words otherwise were almost constantly unintelligible; his hearing appeared quick; his features had nothing remarkable about them; his lips and teeth were dry; his tongue was brown and wrinkled; his abdomen meteorised, not pained by pressure; his pulse was small, contracted, and at a hundred and twenty-three; the respiration short, at forty-four; cough, rare; respiratory murmur, mingled with a dry, sonorous râle on both sides, and on the back of the chest. The patient often refused to drink, and *some* rose-colored, lenticular spots were seen upon the abdomen.

(Sweetened barley water; tamarind whey, twice; flaxseed tea enema, twice; blister to legs.)

Delirium continued ; there were no dejections during the day, and in the night the patient made constant efforts to get out of bed. On 14th, continuance of the delirium ; forehead wrinkled ; the patient was very unwilling to be examined ; struck those who felt of his pulse ; muttered when any part of the body was touched ; urine involuntary.

15th. No appreciable change. A bath was ordered. The patient was very restless while in the bath, and I saw him when he came out of it, and then his skin was generally injected ; the typhoid or lenticular spots, which were rare before the bath, were extremely numerous and confluent in many points, and spread over the trunk and even upon the limbs.

Some dejections during the day, and much restlessness during the night. On the morning of the 16th this restlessness was constant ; the face was colorless ; arms, rigid ; eruption as abundant as on the preceding day, but of a less bright color ; the pulse extremely feeble, so that it was impossible to count its pulsations, and at half past eleven, one hour after we had left him, the patient died.

Opening of the corpse twenty-one hours after death.

EXTERIOR. — Numerous red-colored stripes or wheals behind and upon the sides of the body ; considerable cadaveric stiffness ; muscles, firm, not sticky. Inguinal glands, red and enlarged.

HEAD. — Some traces of effusion under the *arachnoid* ; a small spoonful of serous fluid in each of the lateral *ventricles* ; six in the lower occipital fossæ ; *cerebrum*, firm and very much injected.

NECK. — Cervical glands, red and enlarged, without any marked softening of them. *Larynx*, natural ; mucous mem-

brane of the *trachea*, red at its lower part, but otherwise healthy.

CHEST. — Two spoonfuls of clear serous fluid in the *pericardium*. *Heart* and *aorta*, natural ; much fluid blood in the *aorta*. *Lungs*, of rather a bright red color, otherwise healthy, save at the lower lobe of the right, which was heavy, dense, difficult to be torn, entirely deprived of air, not granulated, of a red brown color, and containing very little fluid. The *bronchia* were of the same color as the parts of the lungs to which they corresponded, but they were thin and healthy.

ABDOMEN. — *Æsophagus*, natural. *Stomach*, of medium size. Its mucous membrane was red about the cardiac orifice, and had a slight rose color in other parts ; it was a little mammeloned throughout a great part of its surface ; it was not thickened and was a little softened, except in the neighborhood of the pylorus, over the space of three inches. The *duodenum* presented nothing very remarkable. The mucous membrane of the *small intestine* was injected, and a little thickened in some points ; it was generally softened to a moderate degree ; and in the neighborhood of the cæcum, for the space of three feet, there were *elliptical patches* opposite the mesentery, more or less red and uneven, from one to two inches and a half in their longest diameter, about a line and a half thick. The mucous membrane was destroyed over a small extent of surface on some of these patches ; it was thickened and softened throughout the remainder, so that it could not be raised in strips. Underneath this membrane there was a homogeneous substance, of a whitish, yellow or rosy hue, developed in the submucous cellular membrane. This was easily perceived about the edge of the patches where the cellular membrane was seen to divide in order to

receive the above-mentioned substance. The surface of the patches which were not ulcerated was rough like the shell of dried almonds ; and this was caused by the enlargement of the orifices of the crypts. The mucous membrane of the *large intestine* was natural except in some points of the right colon, and at the place of union between the transverse and the left colon, where it was red, softened and thickened in small spots, or ulcerated in equally minute points. The *mesenteric glands* had generally considerable size, especially in the neighborhood of the cæcum where they were red and very much softened. Some of the *mesocolic* glands were, likewise, the seat of the same alteration. The *liver* was healthy ; the *gall-bladder* very much distended by a fluid of the color and consistence of urine ; the *cystic duct* was obliterated at half an inch from the neck of the gall-bladder, and the part thus obliterated (eight lines in length) was transformed into a cartilaginous substance. The *spleen* was at least of three times its usual size. The rest of the organs were healthy.

If we remember that before the administration of the bath the rose spots were few in number, that they were very numerous when the patient came out of it, moreover, that this eruption was much more copious in this case than in any other case in which I observed it, we can hardly refuse to believe, as I have already said, that it was excited by the action of the bath.

Moreover, although I did not ask whether the patient had or had not pains in the abdomen, it is evident that in this case the disease pursued its wonted course. For, on the one hand, the lesions were the same as in those cases in which the symptoms, having been observed with the greatest care, establish with certainty that the small intestine is the origin of

them, and, on the other, according to the supposition that the change in this organ was not prior to the commencement of the diarrhœa, we could not tell to what organ we ought to refer the first symptoms, as the small intestine was the most seriously diseased. The reader will remember, likewise, that on the first day on which I saw the patient there were already some rose-colored, lenticular spots ; hence, on the supposition that the disease of the small intestine and the diarrhœa commenced at the same time, we must admit that the spots existed on the fourth day of the disease of the ileum ; that is to say, at a much earlier period than I observed them in any of the cases in which the origin of the first symptoms coincided evidently with that of the alteration of the elliptical patches of the ileum.

Having well determined the course of the disease it may be asked whether the condition of the organs accounts sufficiently for the death of the patient, for no one of the observed lesions was extremely grave. The number of the diseased patches of the small intestine was not very great ; the intervening mucous membrane was not very much softened ; as much may be said of the mucous membrane of the stomach, and that of the large intestine was healthy, save in some red spots, some of which were ulcerated, others not so. But if the mucous membrane of the small intestine was but little softened, it was so throughout its whole extent ; it was thickened in a great number of points ; the softening of the mucous membrane of the stomach extended over a considerable space ; the spleen, if it was only moderately softened, was, nevertheless, very large, and if we remark that all these lesions came on in a very short time, we shall have sufficient reason, as it appears to me, for the occurrence of death.

This is a case, likewise, in which, while considering it, we

must not forget what has been previously stated in regard to the cerebral functions, and particularly delirium. Although we could not find any material cause in any appreciable lesions of the brain, we ought, nevertheless, to take this organ into account when seeking for causes which may have produced death, for the derangement of an important function has very nearly the same effect when it is severe, whatever may have been its exciting cause.

The habit of considering as critical various accessory lesions of many acute diseases has, doubtless, been the reason of our attributing the same character to the spots. But this seems to me to be paying too much respect to custom, for these spots occur usually at a period near the commencement of the affection, at any rate, far from that at which the disease usually terminates, either fatally or favorably, at a period when, as has been said, the disease has not arrived at its fullest development, or is only at the commencement of this period. These spots have evidently the same characteristics as the other secondary symptoms have which we have heretofore studied, and, like them, there is a great variety in their severity, time of commencement and length of time they last, so that it is impossible to consider them under any other point of view than as secondary lesions. Simply by reason of its extreme frequency in the typhoid affection in comparison with its occurrence in other diseases this symptom seems to have in this disease something of a specific character, very nearly like the alterations of the spleen, which last are not peculiar to the affection which we are now studying.

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.

All the subjects except three in whom the disease was *severe* (fifty-seven) had rose lenticular spots, and it must,

likewise, be noticed that two of these three subjects did not come to the hospital until the fourteenth and fortieth days of the disease, perhaps, therefore, after the rose spots had disappeared, and in the other I did not seek for them except between the seventh and eleventh days of the disease, after which the eruption often appears. And in this case there is just reason for doubt, inasmuch as this eruption occurred in all the cases in which the affection was slight.

As in those who died, we observed only a small number of spots on some patients, five or six upon the chest and abdomen, either simultaneously or in succession. On others, on the contrary, the eruption was very abundant. It had this character in twelve subjects, three of whom, likewise, had rose spots upon the limbs in the neighborhood of the trunk.

The development of the eruption was gradual, its disappearance often very slow; its mean term of duration eight days and a half, the extreme terms of this duration were three and fifteen. This last fact proves that it is not necessary, in order to be sure of the existence or absence of lenticular spots, to observe the surface of the body every day, and it will be sufficient to examine it for them two or three times a week, with the certainty that the eruption will not escape our notice if it occurs.

Its time of commencement was evidently the same as in the case in which the disease was fatal. I observed it twice on the sixth day of the affection, three times on the seventh; in a third part of the individuals on the tenth. It commenced between the twentieth and thirtieth days of the disease in ten subjects.

It occurred, as I have already stated, in all the cases in which the affection was *slight*, and this fact is not merely a

nearly certain index that these spots appear in nearly all the subjects affected with the typhoid disease, but it shows that their cause is peculiar, different from that which presides over the development of other secondary phenomena, the frequency and gravity of these last being in proportion to the gravity of the disease and the febrile excitement.

The time of commencement, the abundance, the length of duration of the eruption varied not less than in the previous cases. I observed it only once on the sixth day of the disease, once on the ninth, three times on the tenth, twice on the eleventh, the mean time was at a later period of the disease than in the cases in which the symptoms were more grave. The extreme terms of its duration were three and seventeen days; mean term, seven; that is to say, they were very nearly the same as in the grave cases.

III. IN PATIENTS AFFECTED WITH OTHER ACUTE DISEASES.

Unfortunately I did not examine the surface of patients affected with these diseases, except in a small number of cases, but as arithmetical results are always important, I will now state my observations on this point. Out of fifty patients affected with pneumonia, angina gutturalis, diarrhœa, rheumatism, pulmonary catarrh, pleurisy, intermittent fevers, gastro-enterite, gastric embarrassment (*embarras gastrique*) in whom I looked for this eruption, I found that twelve, or a little less than a fourth part had rose-colored, lenticular spots at a certain period of the disease. These cases were distributed in the following manner; one in two pneumonic patients who died; two out of twelve affected with diarrhœa; one of three affected with rheumatism; three of the eight ill from pulmonary catarrh; and one of the four affected with gastro-enterite; four of the ten individuals who had symptoms of more or less

prolonged gastric embarrassment. The eruption was very slight in these twelve cases.

2d. Sudamina.

I. IN PATIENTS WHO DIED OF THE TYPHOID AFFECTION.

These vesicles, formed by the elevation of the epidermis by a limpid fluid, varied much in size and form. When small, they were about a quarter or three quarters of a line large, and of a rounded shape ; when larger, that is, when from one to two lines in their greatest diameter and sometimes more, they were oblong, like tears, of which they had the aspect when their dimensions were considerable. Generally, they were more numerous on the neck and in the neighborhood of the scapulo-humeral articulation than any where else ; they covered a great part of the body in one case in which they were very much flattened, and in the intervals between them the epidermis could be scraped up by the slightest rubbing, as happens sometimes upon the body of certain subjects, chiefly of those who die of an eruptive disease (Obs. 16.)

The sudamina were, by no means, always in proportion to the quantity of perspiration ; they were sometimes inversely as this last symptom, being very numerous when there had been but little perspiration and reciprocally. Perspiration, therefore, was not the most important circumstance of those which concurred in their production, but we must admit that they depend upon an affection of the skin, which has not been appreciated as yet. Under this point of view, sudamina seem to me to be a fact of much importance in the history of the typhoid affection. By a fatality, which I cannot too much regret, I looked for them in nine subjects only, in six of whom, or in two thirds, they were seen in a larger or smaller quantity. And, nevertheless, this proportion, drawn from so small a

number of facts is very probably, as we shall soon see, the true one.

The duration of the sudamina was from three to ten days. I did not observe them in a single case before the twelfth of the disease.

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.

Sudamina were observed in fourteen out of the twenty-one subjects in whom the disease was *grave*, and in whom I looked strictly for them; that is to say, in the same proportion as among those who died. As in the latter, I never saw them before the twelfth day of the disease; they were, at times, numerous, at others few in number. Twice I saw them covering the greater part of the surface of the body, and in the intervening spaces the epidermis could be raised by the slightest rubbing, leaving thereby the dermis exposed, in a moist condition and of a somewhat pale rose color, which became soon of a much brighter hue. Finally, they were, by no means, in proportion to the perspiration.

The proportion of the cases in which there were sudamina was, likewise, the same in the patients in whom the affection was *slight*. Eight out of thirteen had more or less of them, but they were not in great quantity in any of them, and in no case were we able to raise the epidermis between them with the facility of which we have previously spoken. This difference, although slight, seems to me to support what I have before stated in reference to the origin of the sudamina; that they depend upon some unknown alteration of the skin, which must be greater when the affection is grave than during a slight attack of it.

Since sudamina appeared as frequently in the cases of slight

attack as in those which were more severe, must we conclude that this eruption, like the rose-colored, lenticular spots, is something peculiar to the typhoid affection?

Desquamation of the epidermis occurred to a greater or less extent in some of the grave cases of the typhoid affection which terminated favorably, even in patients who had no sudamina. Like the sudamina, this desquamation indicated a previous disease of the skin, and I regret very much that I did not look for it oftener.

III. IN PATIENTS AFFECTED WITH OTHER ACUTE DISEASES.

The rare occurrence of sudamina in those cases in which there was copious sweating confirms my previous deductions in relation to the most important condition necessary for the development of sudamina. Out of forty patients who had copious perspiration, and in whom sudamina were sought after with great care, three only presented traces of them, one out of six persons affected with enteritis, two out of five who had scarlatina. The affections, during which I never observed any, were intermittent fever, pulmonary catarrh, pneumonia, &c.

If we cannot say that sudamina are peculiar to the typhoid affection, at least it is true that they are much more common during its course than during that of any other acute affection.

3d. Erysipelas.

I. IN PATIENTS WHO DIED OF THE TYPHOID AFFECTION.

This inflammation occurred in six subjects, and progressed rapidly in four of them to the subcutaneous cellular membrane; four died between the twenty-fourth and thirtieth days of the disease; two beyond that time.

The erysipelas was slight and disappeared after lasting two days in two cases. It was confined to the nose from the tenth to the twenty-first day of the disease in one, and it passed from the nose to one of the knees in another, and attacked each of them successively during twenty-four and thirty-six hours (Obs. 19), and there were no traces of it at the autopsy, although death occurred very shortly after it began.

In those cases in which there was severe erysipelas, it came on ten and twenty-eight days before death occurred ; it ran very rapidly in its course in one subject, the history of whose case I shall soon give ; it terminated in gangrene in another, as we have already seen. The general symptoms changed but little when it began ; chills occurred in one case (Obs. 39) ; there was a little delirium in another ; the pulse became quicker than before in one subject (Obs. 16).

THIRTY-NINTH OBSERVATION.

Chills, anorexia, nausea, thirst, epistaxis, diarrhœa at the commencement ; afterwards, depression of strength ; meteorism ; return of the epistaxis ; increased depression ; at a later period, chills ; delirium ; erysipelas of the right leg and thigh ; death on the *twenty-eighth day*. Phlegmonous erysipelas of the right thigh and leg ; elliptical patches of the ileum, greyish, reddish and bluish, some ulcerated, others not so ; corresponding mesenteric glands, of the same color, somewhat enlarged and softened, &c.

A CLERK, æt. 23, somewhat thin, of rather tall stature, of an active character, was admitted to the hospital of La Charité, Dec. 23d, 1823. He had been in Paris six weeks, this being the third time he had visited the metropolis, and he came unwillingly on this last occasion, for he had been rather ill each time

during his residence in the city. He had had diarrhœa almost constantly for a month ; said he was not well ; had kept his bed twelve days, having had pains in the head some time before that period.

At the commencement, chills, copious epistaxis, anorexia, nausea, increase of thirst, which had been already greater than common, for five weeks. The pain in the head diminished gradually ; the epistaxis had returned several times, and it had been always considerable ; it was the same with the chills. He had had pains at the epigastrium, colics from the first day, and during the last six days a little cough with bloody sputa, some soreness of the throat and difficulty in swallowing. There had been nearly constant drowsiness from the beginning.

On 24th, depression of strength ; patient was lying sometimes on his side, at others, on his back ; memory weak ; nevertheless, the details which I have already given, and which I obtained from the patient, were confirmed by his father on the next day ; answers, very slowly returned, drawn from him, as it were ; drowsiness as soon as the attention of the patient ceased to be kept up by questions ; neither headache nor pains in the limbs ; tongue, rather red at tip, smooth and nearly dry ; great thirst ; deglutition, easy, although patient had sore throat with tension and redness of the velum palati ; abdomen, slightly meteorised ; epigastrium, sensible to pressure ; two dejections ; pulse, small, feeble, at eighty-four ; skin, rather warm, soft ; some sputa containing but little air, of a dark red color ; cough, infrequent ; respiratory murmur, natural.

(Gum potion ; barley water with sir. tart., twice ; infusion of cinchona ; enema of camphorated cinchona.)

There was moderate drowsiness and rather copious epis-

taxis during the day. On 25th, same slowness in giving answers ; rather less depression of strength than the day before ; constipation ; pulse, at ninety-two ; no other changes.

(Two blisters to legs.)

From the 26th to the 29th, the diminution of strength increased ; the patient resembled, as it were, an inert body ; he had almost constant somnolency ; some attacks of epistaxis, and the upper lip was thick and swollen. On the 27th and 28th the dejections increased ; he had nine during the day of 28th. He had great thirst ; the tongue was nearly natural ; the abdomen flattened and not pained by pressure ; the pulse was moderately accelerated ; the skin was very hot. There were rose-colored, lenticular spots, somewhat prominent upon the abdomen on the 26th, and they made great progress during the succeeding days.

The infusion of cinchona was suppressed on 30th, and there were twelve dejections during the day. On 31st, moderate prostration ; incomplete action of mind ; pulse, small and feeble, at a hundred ; skin, not very hot ; tongue, moist.

(Infusion of cinchona, twice ; potion with wine and syrup of cinchona āā ʒ ij. and sulphate of quinine ʒ ij. ; fomentation of camphorated alcohol ; blisters to neck.)

There was somewhat less prostration between the 1st and 3d of January. The patient took half of the potion on the day on which it was prescribed, and this potion excited nausea, afterwards, some vomiting. The tongue was white on the 1st, red and dry on 2d and 3d ; the abdomen was never pained by pressure ; the patient had from six to eight dejections during the day ; the pulse was small and feeble, at a hundred and twenty, afterwards, at a hundred and six.

On 3d, aspect that of one suffering from uncomfortable feelings and disgust ; upper lips, still tense and thickened ;

tongue, red, dry and rough ; respiratory murmur, natural ; slight excoriation over the great trochanter of the right femur ; bright redness of integuments of the sacrum.

(Bitters omitted ; three glasses of wine.)

During the day chills, tremblings, frequent dejections. On 4th, no change of symptoms, same absence of pains.

At intervals during the day and night patient had delirium ; on 6th, expression of disgust ; redness of the right knee and of the adjacent parts on the outside of the thigh, with slight increase of size but without well-marked tension of the skin ; no pain in this part. Pulse, at a hundred and twenty-eight ; respiration, moderately frequent.

The thirst was very great ; patient had an involuntary dejection during the night. On 7th, in the morning, somnolency ; stiffness of the left arm ; abdomen, very much meteorised ; the remainder as before.

(Warm bath for six minutes.)

The patient found the bath grateful to him, and he had delirium during the night. On 8th, features, sunken ; face, pale ; rigidity of arms, particularly of the left ; redness of the right knee and over a great part of the thigh and leg corresponding to it ; tongue, moist ; pulse, very much accelerated ; a little sonorous râle at the left part of the back of the chest.

On 9th, speech, unintelligible ; transparent cornea covered with a viscid coating ; right foot, leg and thigh of the same side, bluish ; the epidermis of these parts was raised in many points, entirely gone in others. The bluish color was circumscribed over rather a large space by a red color.

The patient died at six, P. M., without having said a word to his relations, whom, however, he seemed to recognise.

Opening of the corpse thirty-six hours after death.

EXTERIOR. — The whole of the right lower extremity was more or less enlarged, more or less of a red and livid color, deprived of its epidermis in many points; skin, thickened and hardened. On the outer part of the right thigh and leg the subcutaneous cellular membrane contained a reddish purulent serous fluid. On the foot the effusion was bloody, but was without pus. The skin of the right thigh, corresponding to the blister, was thin and granulated; it was destroyed over the greater part of the space covered by the blister on the left thigh. The inguinal glands of the right side were enlarged, reddish, and contained some purulent points.

HEAD. — *Arachnoid*, perfectly healthy; a small spoonful of serous fluid in each of the lateral *ventricles*; three in the lower occipital fossæ. *Pia mater*, not injected. *Cerebrum*, natural.

NECK. — The *pharynx*, *epiglottis*, *larynx*, and *trachea* presented no remarkable appearances.

CHEST. — Neither effusion nor adhesion between the *lungs* and *pleuræ*; a soft, yellow false membrane of small extent upon the right lung. This lung with the left was soft and of a pale rose color at the anterior part; of a more or less deep red hue behind, where the two organs were of rather firm consistence without being either in the first or second stages of inflammation or splenified. *Heart*, small, but perfectly healthy. *Aorta*, full of blood, of a natural color. The deep-seated veins of the thigh contained no pus.

ABDOMEN. — The *œsophagus* was pale, and at an inch from the cardiac orifice of the stomach, it contained, in the space of twenty lines, eleven oval, vertical ulcerations, from two to three lines in their longest diameter, with pale borders, and hav-

ing the appearance of being made by means of a gouge. The corresponding mucous membrane was entirely destroyed, and the submucous cellular membrane slightly thinned. The *stomach* was not so large as usual by a third, and it contained a little bile. Its mucous membrane was of a dark yellow color mixed with grey in the great cul-de-sac; it was of grey mixed with rose along its small curve; and of a grey throughout the rest of its surface, which was of a deeper shade according as the membrane was examined in a point near the great curve; it was slightly mamelonated near the great cul-de-sac, where it was very little softer than natural; it was of a proper thickness and consistence in other parts. The *small intestine* contained a moderate quantity of yellow mucus. Its internal membrane presented a great number of small grey points; it was generally greyish and of good consistence, save in the last two feet of the ileum, where it was a little softened. Some *elliptical* patches, opposite the mesentery, at once greyish, bluish and reddish, thin in their centre, one line thick at edges, were in this part, and their thickening was owing principally to the submucous cellular tissue, which had a livid red color. The mucous membrane of these patches was softened, thinned and destroyed in some parts, and for the space of three lines upon two of them nearest the cæcum. The *large intestine* contained a small quantity of pultaceous fæcal matter. Its mucous membrane was pale, a little softened, and on it there was a certain number of greyish flattened crypts, some of which were slightly ulcerated in the neighborhood of the spleen. The *mesenteric glands*, corresponding to the ileum, were greyish and bluish, and of the size of small nuts, and were moderately softened; the *liver* was healthy; the *bile* of the gall-bladder, copious, very liquid and of a clear yellow color; the

spleen was healthy, except in being a little larger than common ; the other *viscera* were healthy.

It was only four days before death that I observed, for the first time, erysipelas, then limited to the right knee and to the lower part of the corresponding thigh. On the supposition that at that time it had already existed during two days, which seems indicated by the chills experienced by the patient, its course was not the less extremely rapid, and it is remarkable that, notwithstanding the rapid course and the advanced period of the disease at which the erysipelas commenced, still, the skin affected by it was red, hard and thick at the autopsy, and the redness very definitely marked. This is a new proof of the continuance of the characteristics of inflammation after death when it really exists at that period.

The patient experienced no pain in the inflamed part, and this absence of pain is worthy of notice ; for, if the inflammation had been deep-seated it would have been impossible to have seen the inflamed organ, and we should have had no means of recognising its seat ; I do not say its existence, for the chills which occurred six days before death indicated the development of a new lesion.

We cannot consider the blister of the right thigh as the cause of the erysipelas, for that of the left, though it was followed by an extensive destruction of the skin, did not cause it. If occasional causes had in this place some influence upon the development of the affection, it would be more natural to seek for them in the constantly recumbent posture of the patient and the resting upon the right side. But the fact which proves that we must attribute but little to occasional causes, and particularly to the artificial irritation of the skin is this, that the erysipelas came on in not one case around blisters,

at whatever period of the disease and in whatever number they may have been applied.

As to the causes of death, the chief one evidently was the erysipelas, for the number of diseased, elliptical patches of the ileum was small, and their color, like that of the corresponding mesenteric glands, proves that nature had followed for some time a retrograde course. The mucous membrane of the small intestine, except the two feet nearest the cæcum, was of a proper consistence and thickness; that of the large intestine presented merely some partial alterations, and in the condition of the other viscera there was nothing remarkable.

The course of the disease was the same as in the preceding observations, since the lesions of the small intestine, which had already retrograded at the time of death, were evidently the oldest. Nevertheless, in this case as in the others of which we spoke above, it may be asked at what period the typhoid affection commenced, the patient having had diarrhœa almost constantly from the time of his arrival at Paris, five weeks before admission into the hospital. I fixed this epoch at the moment when the general symptoms supervened upon the diarrhœa, and I think it is the true time; for a diarrhœa without fever, without evident loss of appetite, without the least cerebral symptoms, could not be referred to a lesion which constitutes the anatomical characteristic of the typhoid affection. I would add that, if the commencement of the diarrhœa, which is so common in some persons soon after arriving at Paris, is sufficient to establish that of the disease we are studying, we ought to place the commencement of the disease as far back as five weeks before the admission of the patient into the hospital; now this seems to be inadmissible.

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.

Three of those in whom the disease was *severe* had erysipelas; one on the fifteenth day of the disease; the two others on the thirtieth and forty-fifth; that is to say, in this last case, at the time convalescence commenced. The course of erysipelas was more rapid than in those persons who are not affected with any other disease when the erysipelas commenced, and in two females who were attacked by it, it was on the face, which part it generally affects when it declares itself as an idiopathic affection. Therefore, the febrile excitement does nothing more than the most common causes, viz. it brings into action a predisposition to disease.

None of the subjects in whom the disease was *slight* had erysipelas. One alone had the right fore-arm of rather a bright red color during one day, the twentieth of the disease.

Thus serious lesions of the skin were, like the secondary alterations of the other organs, of more frequent occurrence among those who died than among those who recovered, and among these latter, they were more common in those in whom the disease was of a grave nature than in those in whom the affection was slight.

III. IN PATIENTS AFFECTED WITH OTHER ACUTE DISEASES.

Three out of thirty-six *pneumonic patients who died* had erysipelas on one of the arms, where venesection had been performed, two or three days after the operation.

Although I observed nothing similar in patients who died of the typhoid affection, we can hardly doubt that the vene-

section in these three cases was the occasion of the erysipelas ; but this slight cause of important effects in these cases proves that there was an extreme predisposition in these subjects, since in a number of cases of the same kind, in which venesection was performed, and blisters applied once or many times, the skin was not inflamed.

One alone of fifty-seven *pneumonic patients who recovered* had erysipelas of the arm, likewise, after venesection. The same affection occurred once in a patient affected with *variola* who recovered, and this infrequency of the occurrence of erysipelas in a disease in which the skin is partially inflamed in a great number of points, is one of the most incontestable proofs of the necessity of the existence of predispositions, without which the most energetic causes apparently of diseases are without influence, while the slightest causes excite the gravest lesions, when they are applied to patients who are very much predisposed to these lesions. Erysipelas of the nose occurred between the ninth and thirteenth days of an *angina gutturalis*, and on the left mamma in a woman ill with *rheumatism*, on the fortieth day of the disease.

4th. Various Eruptions ; Wounds from Blistering-plasters ; Eschars.

These *various eruptions* did not occur during the course of the typhoid affection, at least, I have no note proving that they ever were seen, but I think I did not fail to make an examination. They appeared in some subjects affected with other acute diseases as follows. I observed similar patches to those of *erythema marginatum* between the twelfth and fifteenth days of a rheumatic affection ; an eruption somewhat like *urticaria*, very nearly at the same time, in a case of pulmonary catarrh ; *red pimples* (boutons rouges), which did not suppurate, during the course of another case of rheumatism ; *red*

spots of various sizes, without change in the suppleness of the skin between the fourth and ninth days of an angina gutturalis; pustules (*boutons purulents*) on the lips, or at the base of the nose, or other parts of the body in seven cases of erysipelas, enteritis, angina, pulmonary catarrh; commonly in the middle of the course of the affections, sometimes earlier, at others later, during a space of time which varied from three to six days. Therefore, these various eruptions commenced very nearly at the same epoch at which the other secondary symptoms began, hence, there is no reason why we should class them differently; therefore, if these last are not critical, the others cannot, as it seems to me, be considered as such.

The skin, upon which *blistering plasters* had been applied, was more or less ulcerated in an eighth part of the subjects affected with *severe* typhoid affection but who recovered, from seven to twelve days after that on which the application of the blister had been made. This proportion is less than in the subjects who died.* The skin was entirely destroyed in a young girl in whom the disease ran its course slowly, and of whom we have already spoken.†

The blisters produced no remarkable appearance in the subjects in whom the disease was *slight*.

The skin upon which blisters had been applied was slightly ulcerated in a case of pleuro-pneumonia, suppuration having been kept up for many weeks.

Thus, like the mucous membrane, the skin exhibited a great disposition to ulceration during the course of the affection with which we are specially occupied, even in the subjects in whom the disease terminated favorably.

Superficial *eschars* took place on the sacrum in two indi-

* Page 350, Vol. I.

† Page 181, Vol. II.

viduals affected with severe typhoid disease who recovered. They were rather large and deep in another, and commenced on the nineteenth and twenty-seventh days of the disease. None appeared in any of those who recovered from other acute diseases.

ARTICLE IX.

FEBRILE SYMPTOMS, PROPERLY SO CALLED.

These symptoms, the whole of which when combined, it has been agreed upon to call fever, comprehend chills, heat, sweat, and the different conditions of the pulse. Having been the object of the attention of physicians, they ought to fix ours in a peculiar manner, since we learn, from what precedes, that the number and serious nature of the accessory lesions are in proportion to them, and since the derangement of the circulation, on which they in part depend, seems to be their *exciting* cause. We will now study them in succession.

SEC. 1. — Chills.

I. IN PATIENTS WHO DIED OF THE TYPHOID AFFECTION.

Thirty-one out of thirty-three subjects from whom I was able to learn any thing definite in relation to this point had chills, and the whole of them, with merely six exceptions, from the beginning of the disease, at different periods of the day, generally during day-light, sometimes during a meal or in the night. Though often slight, they were severe and accompanied by trembling in a quarter of the patients.

Five of them had only one chill, but this symptom occurred more or less frequently in the others, in the cold as well as during the warm seasons. Fourteen of them had some,

frequently during the first eight or ten days of the disease ; six from the space of from two to three weeks and more (Obs. 5, 7, 15, 21, 43, 44). They generally presented the same appearances when they returned that they had at their commencement ; took place commonly towards evening, when the patient went to bed, or after a meal in some of them who had not entirely lost their appetite. This would seem to indicate that they depended often upon errors of regimen, and they ceased on the admission of the patients into the hospital, notwithstanding the low degree of temperature found there during the winter. They rarely occurred afterwards, and when they did, they marked the origin of some more or less grave secondary lesion, as in the preceding observation, whilst when they returned at earlier periods of disease they did not seem to have any connexion with these lesions, which were not more numerous in those cases in which chills were repeated than in those in which they occurred but once.

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.

All the patients in whom the affection was *severe*, with the exception of three out of forty-five, had chills, or a great sensibility to cold. Six experienced the latter. Nine had a single chill. Chills returned many times during a space of from eight to fifteen days in the others, in the same circumstances as in the subjects who died ; they ceased, likewise, after admission into the hospital ; and they were about as severe as they were when they occurred in the other class of patients.

Twenty-four of the thirty-one subjects in whom the affection was slight had chills ; they occurred only once in four cases ; they returned during a space of time very nearly equal to that of which we have previously spoken in the others, and

twice regularly at mid-day between the first and sixteenth days of the disease, and between the eighth and eleventh. With about four exceptions they commenced on the first day of the disease. They were considerable in three individuals.

III. IN PATIENTS WHO DIED OF OTHER ACUTE DISEASES.

Nineteen pneumonic patients out of twenty-five had chills; three on the second and third days, the others on the day the disease commenced, sometimes before the appearance of the pain, and in one case a whole day before any kind of symptom occurred announcing any affection of the lungs, which seems to indicate that they were in this disease a kind of *prodrome*.* The chills returned only in a small number of subjects during the first days of the disease, and when they occurred at a late period it was owing to the commencement of some secondary lesion, of a more or less severe enteritis, for example.

They did not occur in a third part of the persons who died of other inflammatory diseases.

IV. IN PATIENTS WHO RECOVERED FROM OTHER ACUTE DISEASES.

Forty-five *pneumonic patients* out of fifty-four had chills; one of them, some hours after increased heat of the skin; four, after three or four days of uncomfortable sensations, which did not appear to be important; the others from the com-

* These *prodromes*, the existence and proportion of which it would be interesting to examine rigorously, far from being inconsistent with reason are indicated by it. In fact, the majority of our diseases declare themselves without any appreciable cause, and thus prove the existence of causes which lie hid a long while, and which act secretly upon the constitution of the body, and may manifest themselves by general symptoms before influencing a particular organ in an evident manner. — LOUIS.

mencement of the characteristic symptoms of the disease. The chills were repeated in eleven patients during three or four days, and they ceased, as during the typhoid affection, after entrance into the hospital.

They occurred in a little more than half of the subjects affected with *variola* ; generally at the commencement of the affection ; twice on the eleventh and seventeenth days, and they recurred at many different times in the majority of the cases.

Two thirds of the patients who had *scarlatina* or *measles*, experienced some chills between the first and the fifth days of these diseases, generally many days in succession, and they were commonly lighter during these affections than during the diseases before spoken of.

Twenty-four patients out of thirty-eight affected with *erysipelas* had chills, nearly all of them on the first day of the disease, some of them (six) from the second to the fifth, and commonly with many intermissions. Those who did not have them were, with about one exception, ill during the warmest season of the year, which proves the influence exerted by the atmospheric temperature upon the chills, at least in *erysipelas* ; for this influence was not sensible, as we have already seen, in the patients affected with the typhoid disease.

There were chills, likewise, in two thirds of the individuals ill with *rheumatism* or with *angina gutturalis*, nearly always from the commencement. They returned several times in some subjects in consequence of the external application of cold, or without any appreciable cause, and in one case of rheumatism there were tremblings. A daily, regular chill occurred in a woman affected with the same disease a little before convalescence, and it yielded only to the sulphate of

quinine. The cases in which there were no chills occurred equally during the cold and warm seasons of the year.

Sixty-four out of seventy subjects affected with *pulmonary catarrh* had chills, thirty-three on the first day, the others between the second and fourteenth, and the greater part, three quarters, at many different times. These chills even occurred at regular intervals in eight cases, but they disappeared spontaneously on the next day after the admission of the patients into the hospital, or but a short time afterwards.

Two thirds of the patients affected with *enteritis* had chills (sixty out of eighty-four), nearly all on the first day of the disease, some (a sixth part) between the second and twelfth. They were equally absent in subjects in whom the affection was severe, and in those who had it only in a slight degree; they returned many times in half of the cases, and five times in a regular manner under a quotidian or tertian form. They yielded in three of these cases only to cinchona.

Slight chills without heat of the skin afterwards occurred in a sixth part of the patients affected with *colic from metals*. This symptom was never severe without my finding it possible to account for it.

Although there were no such remarkable differences in the chill as in the other symptoms in the diseases we have been studying, I would, nevertheless, remark that it was generally more severe and of more frequent occurrence in severe diseases than in slight ones; and it is worthy of remark, that it was not subject to such regular returns as in those of this last character, whatever might be the seat of the disease or its nature.

SEC. 2. — Heat and Perspiration.

I. IN PATIENTS WHO DIED OF THE TYPHOID AFFECTION.

After the chills, great heat, which was often extreme, burning, as it were, came on in all the cases. In a little less than a third of the patients it was moderate in degree during the greater part of the course of the disease ; it was considerable in two others, while the pulse was by no means proportionably accelerated. This seems to me to show that in these subjects, at this period of the disease, the heat depended, perhaps, in part upon a special alteration of the skin, which was the more remarkable because it could not be attributed to inflammation.

This circumstance is, in fact, worthy of attention, inasmuch as it shows that it is not possible to decide that inflammation exists, from the occurrence of a single symptom, without exposing one's self to very grave errors ; and deductions from analogy are not any more certain. For what seems more natural than to say an organ is inflamed, the functions of which are deranged, and which has in it a sensation of heat ? Nevertheless, that which we have just stated in relation to the heat of the skin shows that this conclusion is far from being rigorous.

Moreover, instead of being constantly uniform the heat of the skin varied much in the same patients, so that after having been considerable during a certain space of time, it diminished much during the last eight days or more of life, in eight of these patients.

The skin was almost always dry in a fourth part of the cases ; but the heat was accompanied in the remainder of the cases by more or less copious perspiration towards the access

in the evening or during sleep in the night. In some cases, moreover, in which the skin was more or less injected during the earlier periods of the disease, the heat of it was moderate, and there was nearly constant perspiration.

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.

In severe cases the heat of the skin proceeded in the same manner very nearly as in the fatal cases ; it presented the same shades ; it was severe in half of the cases, generally dry during the day and a part of the night, while there was almost constant sweat during the other. This perspiration was not influenced by the diarrhœa, and did not re-act upon the latter save in the cases which terminated fatally. We could not, likewise, call them critical, for the third part of the patients experienced them from the commencement, and many of them to a much more remarkable degree at that time, for a space of eight days, than at any other period of the disease.

Far from being always in proportion to the heat of the skin the perspiration was often in inverse proportion to it. Its duration and prolongation during convalescence were particularly worthy of attention. It occurred in a remarkable degree at this period in six subjects during a space of time which varied from ten to fifteen days, and generally in the night. It prevented the re-establishment of the strength of the patient ; resisted the use of bitter and aromatic infusions, and occurred during the summer in two patients only.

In cases in which the affection was *slight* the skin was rarely very hot ; the perspiration was a little less than in the subjects previously spoken of, and it continued during convalescence for a considerable space of time in three of them, one of whom was ill during the summer. It lasted eighteen

days in a patient whose diarrhœa presented the most obstinacy.

III. IN PATIENTS WHO DIED OF OTHER ACUTE DISEASES.

The skin was less dry and rarely as hot in the *pneumonic* patients as in the subjects who died of the typhoid affection. The majority had during the night, and a great part of the time the disease lasted, more or less profuse perspiration. The heat was more intense in *arachnitis* than in other diseases of the brain.

IV. IN PATIENTS WHO RECOVERED FROM OTHER ACUTE DISEASES.

All the *pneumonic* patients had, during five or six days, more or less intense heat of the skin, which was almost always in proportion to the acceleration of the pulse, but, nevertheless, was much less severe than in the cases of the typhoid affection; it was generally mild, and with the exception of three cases, it did not continue beyond eight or ten days. In addition to heat there was copious sweat in nearly all the cases during the first days of the disease. In some, likewise, after having been abundant at the beginning, it did not re-appear until five, or six, or more days afterwards, when the febrile excitement diminished. It occurred commonly during the night, and was very considerable in a quarter of the patients, who were then obliged to change their clothing, sometimes four, five, or even six times during the night. It is worthy of remark, likewise, that in six of those cases in which sweating was the most copious, there were no sudamina, and in no case did it continue long after convalescence was established.

There was considerable heat of the skin with perspiration in all but two of the cases of *scarlatina* during the first days of the disease. They were a little less in cases of *measles*, but as,

in scarlatina, they occurred from the commencement of the disease. They could not, therefore, be considered as critical.

The increase of heat was sensible during twenty-four hours only in seven out of the thirty-eight subjects affected with *erysipelas of the face*. It was considerable in the others during a space of time which varied from four to eight days. The perspiration was generally in proportion to it. This symptom did not occur except in one subject only out of thirteen at the period of the diminution of the symptoms; it was more or less copious in the cases in which it commenced on the first day of the disease, more rarely on the second, and it returned five or six days in succession, generally in the morning. It did not continue long save in two subjects (during eighteen days), one of whom had a severe diarrhœa, while in the other an erysipelas overran nearly the whole surface of the body, and in this last the perspiration did not cease until the moment when the erysipelas ceased. Did the perspiration, when it continued in the typhoid affection after convalescence was established, depend upon the remains of an irritation of an organ more or less deeply situated?

The skin was more or less hot in forty-seven out of fifty-three patients affected with *rheumatism*, and generally in proportion to the pain, as it augmented and diminished with it. Perspiration occurred in a little more than four fifths of the patients; it commenced on the first day of the disease in thirteen cases in which it was very copious, and it was comparable with the symptom as it appeared in some pneumonic patients spoken of above.

The skin was generally but a little hotter than usual during *pulmonary catarrh*; it did not appear to me to be sensibly more hot than usual in nineteen subjects; it was moderately hot in the others to the number of fifty, and this slight increase

of heat ceased two or three days after admission into the hospital. All except ten had more or less copious perspiration, and two thirds of them from the commencement of the disease, which fact, as it seems to me, repels all idea of its being critical.

Sixty out of eighty-four patients ill with *enteritis*, properly so called, had a little more heat of the skin than natural. The skin was either of a natural temperature, or it was but a little hotter momentarily in the others, whenever some peculiar circumstance, a chill, for example, excited a re-action, and this want of heat in the skin was more common in the cases in which the diarrhœa was severe than in those in which it was slight. Therefore, on the supposition that the inflammation of the mucous membrane of the stomach and intestine was proportioned to the number of dejections, it must have produced effects the reverse of what it determines usually, that is, a heat of the skin as much less intense as itself was severe. I shall remark shortly upon this apparent contradiction. In those cases in which the skin was hotter than usual, it was especially so towards evening or during the night.

Perspiration occurred in a larger number of individuals; it was wanting in only six cases, very nearly in the same proportion among the subjects in whom there was considerable diarrhœa, and in those who had it only in a moderate degree. It commenced on the first day in a third part of the patients, at various epochs in the others, whatever were the degree and severity of the disease. It occurred principally during the night, and lasted four, five, six and eight days or more, it was frequently so copious as to oblige the patients to change their clothing many times during twenty-four hours. But what is truly remarkable is this, that attacks of copious perspiration were more frequent according as the number of dejections

was greater ; in truth, it occurred in half of the patients who were in this condition, or in seventeen out of thirty-six.

After these facts and so many others of the same kind,* we cannot believe in the doctrine of a strict balance (balancement) of functions between the mucous membrane of the intestine and the skin when in a state of disease ; and in general we ought not to regard perspiration save as the effect of a sympathetic action, similar to that which is exercised upon a multitude of other organs as soon as one of them is the seat of a more or less grave lesion. And when we reflect on the slight febrile excitement, which many subjects affected with severe diarrhœa present, on the prompt disappearance of the symptoms, and on the rapidity of the convalescence, we are led to believe that the mucous membrane of the intestine is but little altered in enteritis, but that it is in a condition which differs, perhaps, but little from that of the skin when it is the seat of copious perspiration.

In *conclusion*, the perspiration was not only not in inverse proportion to the diarrhœa, but it generally increased and diminished with it. We could not attribute to it any critical character, since in the majority of the cases it commenced with the disease, during the course of which it was observed, or it commenced but a short time after the beginning. It was not always in proportion to the heat of the skin, which was greater during the course of the typhoid affection than during that of any other disease.

* Researches upon Phthisis, page 211, Paris edition ; Cowan's Translation, pages 141 and 142.

SEC. 3. — Pulse.

I. IN PATIENTS WHO DIED OF THE TYPHOID DISEASE.

The pulse was generally contracted in half of the cases during the whole time I observed the patients after the ninth day of the disease, or in twenty out of forty-one subjects who were examined sufficiently often for me to mention them in this place. And this contracted state of the pulse could not be attributed to the treatment, to tonics in particular, for these remedies were not prescribed in all the cases, and were frequently given to the patients in whom the pulse had an entirely different character. It was rather large and full until during the last days of life in thirteen subjects (Obs. 1, 8, 11, 14, 22, 32, 33, 35, 36, 37, 42, 46); it preserved for a still longer time this character, and presented it in its highest degree in *eight* other cases (Obs. 18, 19, 25, 26, 28, 29).

It presented not less variation in regard to its frequency; it was but little accelerated in eight cases during the whole time the patients were under my observation, or during the eight or fifteen days which preceded death (Obs. 1, 25, 29, 35, 37, 44, 45); that is to say, it beat then only from eighty to ninety times a minute; a kind of calm which the strongest tonics did not disturb, and which occurred equally among subjects who died between the fifteenth and twentieth days of the disease, and among those who died during the two following periods, and the patients had all strong constitutions, and were of the male sex. In the others the pulse beat more than a hundred times a minute during the last ten days of life, and sometimes for a greater length of time. It was at more than a hundred and twenty between the eighth and twentieth days of the affection in one subject who died at this last period, and it

fell from one hundred and fifty to a hundred and sixteen during the last six days of life in another (Obs. 31), in whom the pulse was always feeble and regular.

This regularity was observed in the majority of the patients ; in fact, I found the pulse irregular and intermittent in only seven of them, at various epochs of the disease and during a short time (Obs. 2, 3, 13, 21, 30, 33, 43).

I tried to determine whether there was any relation between the different characters of the pulse and the two principal conditions of the heart, and I will now give the results to which I have arrived. Of forty-one subjects in whom the pulse was properly observed, thirteen had the heart softened, and nearly all of them to a remarkable degree. On the other hand, out of seventeen patients in whom the pulse was unequal, irregular, intermittent, small, feeble, trembling and sunk during more or less time, eleven had the heart softened. That is to say, that in nearly all the cases in which there was softening, the pulse presented some of the characters mentioned above ; so that the heart was not natural save in a third part of the cases in which these characteristics were observed.

Out of three subjects in whom the pulse is unequal, irregular, intermittent, or trembling, and very much accelerated, we can conclude, therefore, with probability, that there are two in whom the heart is softened or flaccid.

From this proposition flows another as a consequence, viz., the possibility of recognising, at least by approximation, the moment when this softening commences, since it must be the same as that in which the pulse begins to offer the characters indicated above. Starting from this principle, the softening of the heart must have commenced four, seven, ten and twenty days before death in these subjects ; that is to say, at

periods not less varied than those of all the other secondary lesions, and, in particular, those of the skin. This rapidity with which the heart becomes soft in some cases is, moreover, rigorously demonstrated by a number of facts, since softening occurred in a remarkable degree in many subjects who died between the eighth and twelfth days of the typhoid affection, and before this period in some who died of other acute diseases.

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.

The pulse was large in eleven of fifty-seven cases in which the disease was *severe*, during the whole time that I observed the patients ; that is to say, during an interval which varied from six to fifteen days. It was small and contracted in eight individuals ; it presented nothing remarkable with respect to size in the others. Its velocity was in an inverse proportion to its fullness ; in fact, in no one of the cases in which it was the most full, did it have more than ninety-two pulsations in a minute.

It was commonly less accelerated than in the subjects who died ; it did not have more than ninety pulsations in a minute in twenty cases. It even remained below eighty in one patient in whom the depression of strength was great, and in all these cases the course of the affection was rapid. In the other patients the pulse beat more than ninety times a minute for a considerable space of time ; it was more than a hundred during ten or twelve days in succession in three individuals, one of whom was the young girl whom I have already alluded to several times, in whom the depression was so great and the disease so long. From the twelfth to the twentieth day her pulse beat from one hundred and twenty to a hundred and forty times a minute.

From the comparison of these facts with the preceding ones, it follows that a moderately rapid pulse makes the prognosis more favorable, and ought to make us conjecture that the course of the disease will be rapid, while an opposite state of the pulse ought to make us fearful as to the termination and the length of the disease.

The pulse was unequal or intermittent in six subjects; it was confined, small, trembling, and very much accelerated in four. Depending upon the relation existing between the different conditions of the heart and those of the pulse in the subjects who died, we may believe that the heart was more or less softened in six or seven of these; that this softening was not more common in the cases in which the course of the disease was slow than in those in which it was rapid, and that it commenced from eight to ten days after the commencement of the disease.

The symptoms of softening of the heart, deduced from the state of the pulse, seem to me to merit the more confidence, because they indicate that the softening is much more frequent among those who die than among those who recover; and this is what we have seen to be the case with all the other secondary lesions, as we learned from certain symptoms, upon the value of which writers generally have the same opinion.

III. IN PATIENTS WHO DIED OF OTHER ACUTE DISEASES.

The pulse was often large in the majority of these individuals, and its velocity was generally much less than in the individuals who died of the typhoid affection, even among the pneumonic patients; in fact, I found that it beat not more than ninety times a minute during the last three or four days of life, save in a fifth part of the subjects affected with this disease.

In regard to the other characteristics of the pulse, I observed as follows. It was unequal, intermittent, and very small in six pneumonic patients, four of whom, or two thirds, had the heart softened. It was the same case with four individuals who died of other affections, among whom three had this same softening in different degrees. So that these facts are in perfect unison with those furnished by the subjects who died of the typhoid affection, and confirm what has been said in relation to the diagnostic signs of softening of the heart, which signs, it appears to me, must add new interest to the study of the different conditions of the pulse, which have already become so important.

IV. IN PATIENTS WHO RECOVERED FROM OTHER ACUTE DISEASES.

The pulse was large, had less than eighty pulsations a minute in three quarters of the cases of *pneumonia*; it was quicker in the other; it beat a hundred in a minute in some subjects during many days, and lost in a great measure its velocity very soon after the local symptoms became stationary, or appeared to amend a little. And, as in the typhoid affection, the duration of the disease was inversely as the acceleration of the pulse. It was unequal and intermittent in one out of these fifty-seven subjects; it was small, contracted and very rapid in two others; so that we judge, from what precedes, that the heart was softened in these three cases. This proportion is much smaller than for those who died, as is observed for all the secondary lesions, as I just now remarked.

Smallness and inequality of the pulse occurred in no case of *eruptive disease*, and its acceleration was less during the course of the affection than during that of *pneumonia*. Thus I counted not more than eighty-six pulsations in a minute in a

quarter of the cases of variola and scarlatina, in a sixth part of those of measles, and it continued so during a very few days only.

The maximum of rapidity was the same in the subjects affected with *erysipelas of the face*, always for a short time, and in all the cases save those in which the erysipelas ran over the surface of the body, or was complicated with some other disease, the pulse regained its habitual calmness. It offered momentarily some irregularities, but as at these times it was neither small nor very much accelerated, we cannot say that in either of these cases there was any softening of the heart.

The acceleration of the pulse was less marked ; in truth, it was hardly perceptible, in all the individuals affected with *angina gutturalis*.

The pulse in *rheumatism* was rather more frequent than in this last affection, but less so than in the previous ones. In fact, I found that the pulse beat ninety or more times in a minute in three only out of fifty-seven of these subjects, and during three or four days. The pulse was unequal in one case, and then merely in a transitory manner.

A little less than half of the patients affected with *pulmonary catarrh* (seventy-two) had the pulse evidently accelerated, but in a moderate degree ; it beat ninety times a minute in three cases only, and for a few days. It was more or less irregular in three patients, two of whom did not have it sensibly accelerated. That is to say, that, as in the case of erysipelas, of which we have previously spoken, we could not suspect softening of the heart. This is perfectly in harmony with what we have previously noticed of the infrequency of secondary affections during the course of pulmonary catarrh.

The pulse was calm in fifty-three cases of *enteritis*, or in three quarters of those who had this affection ; that is to say,

in these cases the pulse did not beat more than sixty-five, sixty, fifty-five, fifty, or even forty times a minute. This slowness of the pulse occurred more frequently among those in whom the alvine discharges were frequent, than among those in whom they were rare. It happened in twenty-five out of the former, who were thirty-six in number.

Although the patients affected with enteritis did not come under my observation at the commencement of the disease, yet as the dejections were quite frequent at the time they were admitted to the hospital, it is evident if the diarrhœa had been caused by violent inflammation at the outset, this inflammation would have existed at entrance, and the febrile excitement would have been in proportion to it. On the other hand, if the inflammation had been in proportion to the number of dejections, how could it have been cured so rapidly, as I have remarked above? I do not deny that enteritis may be, at times, a very grave disease, and shall soon give an example of this fact (Obs. 40), but we are not now speaking of exceptions. The facts which have been analyzed are numerous (eighty-four), and from them, it seems to me, it follows incontestibly that diarrhœa does not suppose in the great majority of the cases any thing but a slight degree of inflammation, which, perhaps, would leave no traces upon the corpse, if by chance the patient thus affected should happen to die.

Thus the derangement of the circulation and the alteration in the heat of the skin were, as I have already stated so frequently, in proportion to the number and gravity of the secondary lesions; more important in those affected with the typhoid affection than in those affected with pneumonia, and in those affected with these last than in those suffering from any other disease. And as the connexion of the circulation

with the different organs of the economy is very evident, it is natural to suppose that the derangement of this function is in acute diseases, one of the principal agents of the secondary lesions.

It is proper, however, in this place to anticipate an objection which, perhaps, may present itself to some minds. You attribute, it will be said, the secondary lesions in a great measure to the febrile excitement, because they are proportionate with it, but it may be said with as much truth that the febrile action would not be so marked in some diseases were it not for the secondary lesions which are more or less severe and numerous ; and, therefore, instead of being a cause it is an effect. To this I would answer, that secondary lesions generally do not occur until a period somewhat distant from the commencement of the affection, when the febrile action has already lasted some time and rather severely ; likewise, the febrile excitement does not by any means, always increase when these *lesions* commence, and, therefore, it cannot depend upon them. And if one should say that at the *commencement* of acute disease all the functions of the economy are more or less altered, and that this cannot be attributed to the febrile excitement, I would answer that the second part of this proposition is not demonstrated, and that to suppose the contrary would prove absolutely nothing ; since we are treating of appreciable *lesions* and not of a simple derangement of the functions, a derangement which may exist for a considerable space of time without the viscera offering any sensible alteration.

We must not, moreover, forget that the febrile action, like all other causes, has no effect save upon those organs which are more or less disposed to it. It will be said, perhaps, that the secondary lesions were generally more grave in subjects who died rapidly than in those in whom the disease went on slow-

ly ; and we must, therefore, admit that the febrile excitement must have had less effect according as it lasted longer, and this would be absurd. To this I would answer, that the fundamental alteration, that of the elliptical patches of the small intestine, was more extensive according as the patients died more rapidly, and the febrile action was generally in proportion to it, therefore the contradiction is apparent merely.

ARTICLE X.

RESPIRATION.

Cough ; Expectoration ; Species of Râles.

I. IN PATIENTS WHO DIED OF THE TYPHOID AFFECTION.

Thirty-eight subjects had *cough* at various periods of the disease, a sixth part of them from the commencement, the others from the third to the twelfth days. It generally was very slight, and few patients complained of it (Obs. 16, 38) ; though generally stationary it increased or diminished during the latter days of life in some subjects ; it did not seem to need the use of any peculiar remedy, save a gum potion in five cases. Having existed in three patients fifteen days, one and four months before the commencement of the first symptoms, it did not increase sensibly afterwards.

Expectoration was infrequent, sometimes bloody, one, two, three and four days in succession. Epistaxis occurred at the same time, and the mode in which the sputa were colored, in lamina, indicated how they became of this red hue, and that this tint could not be supposed to come from the bronchia. The sputa had another form ; they were more or less puriform in three patients soon after the commencement of the disease, or

at a period more or less distant from the beginning of the disease. The bronchia were more or less red and slightly softened in one of these cases (Obs. 16, 28, 34).

The patients who coughed were ausculted more or less frequently, and all of them, with about three exceptions, had a dry, sonorous, hissing or whistling, and sometimes a mucous *râle*. This *râle* was commonly very loud and heard over the whole chest; in fact, we very rarely met with it in an equal degree, and so universal by any means in acute idiopathic pulmonary catarrh, save in some rare cases, and what is worthy of remark is this, that notwithstanding its extent, the respiration was but slightly embarrassed, and was infinitely less so than in simple pulmonary catarrh in the same circumstances. And it is peculiarly the disproportion between the *râle* and the difficulty of breathing which makes the former something characteristic of the typhoid affection; so that its presence in a doubtful case, when the disease is slight, and the cerebral symptoms but little marked, may be the means of making the diagnosis more plain. It is of very great importance to know the results of auscultation, in order that we may avoid the grave errors into which I saw a physician fall, who was otherwise a very able man, but who had very little knowledge of auscultation. Every time, therefore, he met with this *râle* in cases of the typhoid affection, even the slight ones, he thought, notwithstanding the small degree of dyspnœa of the patients, that the case was one of very severe pulmonary catarrh, and, accordingly, prescribed venesections, but without success.

This *râle* occurred on the fifth, sixth, and eighth days of the disease in patients observed for the first time at these periods, the cough having existed from the commencement, or having begun the day before that on which I examined the patients.

In addition to the dry, sonorous râle there was a little crepitation in rather a large number of cases (Obs. 3, 5, 14, 16, 32, 33, 34, 37, 42), always over a very limited extent, during the two, three or four latter days of life, rarely at an earlier period, and in two cases in which I observed it eight and ten days before death, it disappeared quickly (Obs. 14, 16). It was the same with the dry, sonorous râle in some subjects, and this proves the necessity there is of ausculting very frequently, in order that we may be able to declare that there is really no râle.

In nearly all the cases in which crepitation occurred, I found at the autopsy the lungs either in the first or second stages of inflammation over a slight extent of substance, at the part which corresponded to that at which the crepitating râle was heard, so that the commencement of this râle, the only sign of inflammation of the substance of the lungs in these subjects, indicated the time at which the disease began.

Great importance has been attributed of late (Laennec) to the cough with which the patients suffered from the typhoid disease are affected; so that it has been considered as one of its essential elements, but this opinion seems to me to be erroneous. We have seen in fact that cough is very frequent during the course of the typhoid affection, but it occurs by no means in all the cases; it commences rarely on the first day of the disease; it appears in the majority of the cases between the fourth and tenth, sometimes later; in a word, it follows the course of all secondary affections; it appears to depend upon an alteration in the bronchia, which is much slighter than that of the majority of the other organs; so that there is no reason for regarding it in any other light.

We can, however, explain very easily how the attention of physicians has been specially directed to the cough which

occurs in the typhoid affections, for this symptom demands for itself special attention whilst we must seek for the existence of the others.

It will, doubtless, not be urged in opposition to the preceding remarks, that cough is much more frequent during the course of the typhoid affection than during that of other acute diseases ; for such is the case with all secondary symptoms.

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.

Cough occurred in fifty out of fifty-seven subjects in whom the disease was *severe*. It was commonly slight and of rare occurrence, so that frequently I should have failed of observing it had I limited myself to taking notes of that merely which I myself saw. It commenced on the first day of the disease in a fifth of the cases ; it was always slight at that time ; and in many subjects it seemed to me as if it occurred at that time merely for the purpose of facilitating the excretion of mucus from the pharynx, so that the number of those who did not have a bronchial cough, (if I may be allowed to use the expression), was probably greater than I have stated. In the others, the cough began ordinarily between the sixth and fifteenth days of the affection, sometimes before, more rarely afterwards. In some cases, after having been of very rare occurrence, and slight in degree during a certain space of time, it became considerable, and then there was in the majority of the patients an inflammation of the substance of the lungs generally to a very limited extent.

Eight patients in whom the cough was always very light, were ausculted carefully many times without my being able to state that any *râle* could be distinctly heard in any part of the chest. There was a dry, sonorous, or mucous *râle* heard over the whole chest in the others, and like that of which we have

previously spoken. And in six cases there was in addition a crepitating or subcrepitating râle, limited to the posterior portion of the chest ; this lasted during the space of five or ten days, between the twelfth and thirtieth of the disease, thus announcing the commencement of an inflammation, but which was always slight, of the substance of the lungs, and of which there was no characteristic symptom, doubtless, because of the small extent of lungs inflamed, and of the debility of the patient at the time it commenced. However, in a young girl whose debility was very great, the crepitation was extensive, continued during a month, and on percussion there was an obscure sound in the corresponding part of the chest. But in this case, as in the others, the sputa had nothing characteristic about them.

Three subjects had pain in the sides of the chest ; two in a transitory manner, one during eight days in a remarkable degree, and in this patient the percussion of the chest gave a flat sound, and there was resonance of the voice in the corresponding point. According to all appearances, there was in this case an effusion into the pleura, the only one which I found in all these patients. And as there were no symptoms of pericarditis or of peritonitis in any case, we must conclude that of fifty-seven subjects affected with the severe form of typhus, one only had inflammation of one of the serous membranes. This is a conclusion which it was easy to foresee, from what we have learned in the second part of this work, viz. the extreme infrequency of inflammation of these membranes in the subjects who died.

The cough was rarely less frequent in those who had the disease in a *slight* manner. Out of twenty-two subjects in whose histories it is mentioned, six had not experienced it.

It commenced on the first day of the disease in seven patients; between the fourth and twentieth in the others; it was generally very slight and inconvenient in four cases only. The sputa were few in number, mucous, sometimes similar to a solution of gum. Out of seventeen subjects in whom the chest was properly examined, twelve had a dry, sonorous or mucous r  le over a considerable extent. A little crepitation was mingled with it during some days, at rather a distant period from the commencement in two cases.

III. IN PATIENTS WHO DIED OF OTHER ACUTE DISEASES.

Two out of three attacked with *peritonitis* had cough; one from the commencement of the disease, the other, during the last three days of life. The lungs were healthy in the latter; they had a slight degree of the first stage of inflammation in the former.

Three subjects affected with *variola*, between the eleventh and eighteenth days of the disease had a little cough with insignificant sputa, and it commenced between the second and sixth days. The lungs were in the first stage of inflammation to a slight degree in one case, but were not remarkably diseased in the others.

Cough, likewise, occurred on the sixth day of *scarlatina*, which proved fatal on the thirtieth in one of the two cases in which this symptom was sought after.

Out of eleven subjects who died of *apoplexy*, or of *softening of the brain*, no one had cough, although at the autopsy of many of these patients the lungs were either in the first or second stages of inflammation. This is a new proof of the influence exerted by the derangement of the cerebral functions upon the development of the symptoms peculiar to the lesions of our organs.

Two patients out of five affected with *hydrocephalus* had a little cough from the third and fourth days of the disease.

Finally, cough occurred in two cases of *erysipelas* of the lower extremities after the seventh and thirtieth days of the disease, in patients whose lungs had but slight morbid changes, and both of whom had a little mucous râle.

IV. IN PATIENTS WHO RECOVERED FROM OTHER ACUTE DISEASES.

Seven patients out of twelve affected with *variola* had cough. It was considerable in one case ; it was slight in the others ; it commenced between the fourth and sixth days in three patients, and it continued between five and ten. There was nothing remarkable about the sputa, and there was no mucous or subcrepitant râle except in one case.

Cough was of much more frequent occurrence during the course of *scarlatina*, or it failed to occur in a sixth part only of the patients ; it commenced on the first day of the disease in three of them ; between the second and tenth in the others ; it rarely lasted eight or ten days, it was accompanied in half of the cases by a dry, sonorous or mucous râle over a moderate extent of surface.

Thirteen subjects affected with *measles* had cough during a certain time, six from the commencement, the others between the second and the seventeenth days, so that in this disease we must consider the symptom less as an accessory one than as a phenomenon essential to the disease itself. It continued a longer time than in *scarlatina*, and was accompanied by a little mucous or sonorous râle in two thirds of the cases.

There was only a little cough in a third part of the patients affected with *angina gutturalis*, and the secretion of mucus was sensibly augmented in only half of the cases, which seems to indicate that there was merely a simple irritation in the

others, perhaps sympathetic, owing to the neighborhood of the principal disease. This conjecture becomes still more probable from the fact that the cough commenced in half of the patients on the first day of the disease.

It occurred during some days only in a third part of the cases of *erysipelas* of the face, and in a fifth part of those affected with *rheumatism*, either in summer or winter, a little oftener during the latter season than the former, and generally at an epoch soon after commencement of the disease. It was always slight.

Twenty-three out of eighty-four subjects affected with *enteritis*, properly so called, had cough, which was of infrequent occurrence, and very slight, and rarely accompanied by some sputa, more rarely still by a *râle*; in truth, I observed this last in five cases only. Out of these twenty-three individuals, twelve were ill during the winter, and if we remember that being obliged to rise frequently, both during the night and during the day while in perspiration, they were thus exposed to the most powerful causes of pulmonary catarrh, we must allow that the cough could not be attributed to the peculiar nature of the disease, save in a very small number; so that except when influenced by causes foreign to the disease, it was, like other accessory symptoms, less frequent during the course of *enteritis* than during the course of other acute diseases.

The simple exposition of the fact I have given, shows, moreover, as I have before remarked, that cough occurs in different degrees and proportions in all acute diseases; that it is more frequent in the typhoid than in any other acute affection, and is generally in proportion to the intensity of the febrile action.

Having thus compared with the symptoms observed in the typhoid affection those which are analogous to them in other acute diseases, it will be well to throw a glance upon the facts of the same kind in persons affected with intermittent fever. By seeing the same symptoms occur at times in cases in which there is nothing in common with the previous symptoms, save one single phenomenon, viz., the febrile excitement, the influence of this last upon the development of the symptoms, or of the secondary lesions will only become more evident.

ARTICLE XI.

INTERMITTENT FEVERS.

As my design is not to examine very thoroughly the nature of these diseases, I shall pass rapidly over every thing which relates to their character, and shall show, as I have already done, what relates to the stomach, abdomen, &c.

SEC. I. — Pains in the Abdomen.

Out of forty subjects affected with *quotidian fever*, eighteen had pain in the abdomen, nine in the left hypochondrium, nine in the umbilicus. These last came on at a rather late period of the disease ; they coincided in two cases with slight diarrhœa, with slight constipation in the others ; they were transitory in all (lasting one or two days.) Pain occurred in the left hypochondrium from the beginning of the disease ; it came on only during the access, especially during the chill in six patients, among whom three told me they experienced at the same time a feeling of tumefaction in the same point.

The spleen was very large in these three cases, and, probably, it was the seat of the pains experienced by the patients.

Its size, likewise, was sensibly increased in five cases in which the left hypochondrium was not pained by pressure, and it may be asked what was the seat of the hypochondriac pains in those cases in which the spleen was not evidently enlarged. It seems to me that this problem is incapable of a rigorous solution. I would, nevertheless, observe that the spleen was the organ which was the most frequently and most evidently altered; that in many cases, in which the spleen could not be felt through the parietes of the abdomen, the chest did not resound clearly in the part corresponding to the spleen, and yet the respiration was perfectly pure in the same part, and hence we know that this increased size did not the less exist. It is infinitely probable that in all, or nearly all, the cases in which the left hypochondrium was painful, the spleen was more or less altered, and it is hardly possible to consider the pain as having been caused by any other organ. Therefore, according to all probability, the intestine was not the seat of pain, which was generally transitory, save in nine cases.

Sixteen out of thirty-six subjects affected with *tertian fever* had pains in the abdomen, twelve in the left hypochondrium, four in other parts of the abdomen. The pains in the hypochondrium commenced on the first day of the affection; they were felt during the access only in eight persons; they occurred during the intervals between the accesses in the others.

The size of the spleen was evidently increased in twelve of twenty-eight cases in which the sulphate of quinine was administered. Five of the subjects had pains in the left hypochondrium. And if to those cases in which these pains existed, though the spleen could not be felt through the parietes of the abdomen, we apply the preceding reflections, we should

infer that, very probably also, the pains felt in the left hypochondrium had their seat, in all or nearly all the cases, in the spleen, the size of which was enlarged in a greater number of cases than has been mentioned.

Out of eight patients affected with *quartan fever* only one had pains in the hypochondrium, although the size of the spleen was enlarged in four of them.

Out of twenty-five patients in whom the fever took successively *different forms*, sometimes separated by intervals without febrile accesses, seven had pains in the abdomen, four in the left hypochondrium, three in the other parts of the abdomen. The pains in the hypochondrium were limited to the period of access; the others were variable and accompanied by liquid dejections during a certain space of time.

The size of the spleen was evidently increased in twelve patients, among whom there was one of those who had pain in the left hypochondrium, and as in the subjects in whom the disease took a uniform course, the percussion of the chest was flat behind, at the left side, and at the lower part of the chest in some cases in which we could not feel the spleen through the parietes of the abdomen (three). Whence we have the consequences previously deduced.

In *conclusion*, out of forty-one subjects who had pains in the abdomen, twenty-five had them in the left hypochondrium exclusively, the others in various parts of the abdomen, generally about the umbilicus; they always lasted but a short time (one, two, rarely three days) without evident reference to the hours of access, and at various epochs of the affection, while in three fifths of the cases in which they occurred in the left hypochondrium, the pains were limited to the access and commenced with the first. It would seem, therefore, as if the

pains were to be considered as essential to the affection, the others being only an accessory symptom, similar to those we have met with in the course of diseases of a continued form.*

SEC. 2. — Diarrhœa.

It occurred in a sixth part of those who were affected with *quotidian fever*. From the first or the second day in three cases ; on the tenth, and during a more considerable space of time in a fourth ; after the first or second dose of the sulphate of quinine in three others, and during three or four days only.

There was a spontaneous diarrhœa in the first three cases, that is to say, it was not produced either by medicines of any kind whatever, or by errors of regimen. And as it followed the administration of the sulphate of quinine in three others, it will, perhaps, be thought by some that it was caused by the action of this medicine, and that this is a proof of the sus-

* If we connect the cases in which there were pains in the left hypochondrium from the beginning with those in which the size of the spleen was evidently increased, and easily perceived through the parietes of the abdomen, we shall have fifty-two subjects, in many of whom there were at the same time pains and a swelling in the left hypochondrium, in whom this part of the abdomen, probably the spleen, was always affected from the commencement. And as I am not now considering those cases in which percussion indicated the increased size of the spleen, and as this increased size cannot be recognised in this manner, save when the spleen is very large, it is not to be doubted that it existed in many of the cases in which I was unable to decide accurately upon the point. If we cannot say that intermittent fevers consist only in a more or less serious alteration of the spleen, since it keeps its size during the intervals of access, and since we can overcome the fever without the size of the spleen being diminished ; nevertheless, the condition of this organ merits great attention from those who study intermittent fevers, since it is evidently affected at their *commencement* in many cases, and is much more frequently so than the other organs, as the facts we shall presently analyze will prove. — LOUIS.

ceptibility of the alimentary canal during intermittent fevers. To these suppositions I would answer, that the diarrhœa having come on spontaneously in three subjects, it would, perhaps, have come on in the same manner in the three others, even if the sulphate of quinine had not been administered; and on the supposition that this salt did really provoke the alvine discharges which followed its administration, this would prove merely a very great predisposition to diarrhœa, a very marked susceptibility of the mucous membrane in these cases, but we should not be able to draw any conclusions with regard to the others, since nearly all of the patients took sulphate of quinine, but in none, save in the three above-mentioned, was it followed by diarrhœa. The same has happened in this case, which we have observed in acute diseases in which diarrhœa comes on spontaneously in a greater or less number of cases, and is provoked by stimulants in some subjects who are much predisposed to it, whatever may be, moreover, the seat of the primitive affection. We cannot, as it seems to me, explain the facts in any other manner.

Seven subjects, or a fifth part of those affected with *tertian fever*, had diarrhœa; five from the beginning, during one or two days; two at a more or less advanced period of the affection.

The first five were among those persons (ten in number) who committed some excesses at the beginning of the disease; diarrhœa came on spontaneously in two others; it followed in no case the administration of the sulphate of quinine, nor that of more or less violent remedies which were given to the patients previously to their admission into the hospital.

There was diarrhœa in one case only of *quartan fever*, which lasted four months, and this diarrhœa might, doubt-

less, have occurred even if there had been no intermittent fever.

Five subjects out of twenty-four who were affected with intermittent fever of *various forms* had diarrhœa, one from the commencement of the affection after an excess, the others at a later period, spontaneously, or not in consequence of the administration of the sulphate of quinine.

Taking from these cases of diarrhœa those in which it was excited by excesses of any kind, we have nine examples of this symptom out of one hundred and nine patients affected with intermittent fever. That is to say, diarrhœa occurred in a twelfth part of the individuals, always slightly and during a short time. This is a small proportion, and quite in harmony with the presumed cause of this affection, the febrile action.*

SEC. 3. — Pains in the Epigastrium.

These pains occurred in six out of forty-subjects affected with quotidian fever generally during twenty-four hours, sometimes during the cough only, or on pressure; one or many days after the administration of the sulphate of quinine in two patients.

In seven out of thirty six cases of *tertian fever* there were pains in the epigastrium. They commenced without any known cause in all the subjects, generally at a more or less advanced period of the affection; they lasted from twenty-four to forty-eight hours in three of them; from four to fifteen days in the others. They occurred only at the hour of access in two of these last, were constant in the two others, the only ones who experienced them from the commencement.

* It is evident that if the seat of intermittent fevers must be either the spleen or the intestine, it cannot be the intestine. — LOUIS.

One of the patients affected with *quartan fever* had pains in the epigastrium during three weeks, and they were relieved after meals.

Four subjects out of twenty of those who had intermittent fever of *various forms* experienced the same pains, three of them in a transitory manner at various epochs, one only between the first and seventh days of the disease, and at the times of access only.

Hence we find that there were eighteen out of these hundred and nine patients who had pains in the epigastrium, but if we take from these cases that in which the pain diminished after taking food, if we observe that in many others they were very slight and only excited by pressure ; if we remember that in continued diseases pain at the epigastrium does not correspond to a more or less marked affection of the mucous membrane of the stomach, save in two thirds of the patients, we shall see how much the number of cases of gastric irritation or inflammation is reduced, to which we could refer the pain of which we are now speaking.*

SEC. 4. — Nausea and Vomiting.

Ten of the subjects affected with *quotidian fever* had nausea ; three spontaneously, the others from having drunk copi-

* Admitting, what does not seem to me to be doubtful, that there was in some subjects an inflammation of the mucous membrane of the stomach, this inflammation occurred as rarely as it was of little importance, since in no case were there at the same time pains at the epigastrium and vomiting. The following fact proves that the mucous membrane of the stomach was but little susceptible, during the course of tertian fever, for example. Many of those who had it took large doses of copalchi (a febrifuge ; somewhat similar to cascarilla), one, or two, or more drachms, without expe-

ously during the time of access, or from some glasses of bitter ptisan, of beef tea, or from something difficult of digestion. It was confined to the time of access in one of the three cases in which it occurred spontaneously.

Two patients had vomiting. It was of a bilious substance, and confined to the period of access in one patient who had some during twenty days in succession, and although he had no pains in the epigastrium at any period of the disease, one cannot doubt that at the period of access there was a more or less severe irritation of the mucous membrane of the stomach, and, perhaps, of the liver.*

Twelve, or a third part of the patients affected with *tertian fever* had nausea, nine at the time of access during the cold or hot stages, three while there was no fever, one at many different times for twenty days, the other two momentarily. Save in those cases in which vomiting was excited by the use of too large quantities of drink or of food difficult of digestion, it occurred in three patients only, always at the time of the access of fever, during the cold or hot stages.

One patient affected with *quartan fever* had nausea during

riencing the least inconvenience, and many ate food an hour, or an hour and a half before the access, without vomiting what they had eaten. — LOUIS.

* This fact does not prove either that the stomach is the seat of intermittent fever in general, or that its mucous membrane is more irritable than during any other affection, which I showed to be not the fact in the preceding note; for this fact is unique; moreover, three patients who took sweetened warm wine and water at the time of access had neither pains at the epigastrium, nausea nor vomiting. We must merely conclude from this fact that febrile intermittent affections, whatever may be their cause, determine, more or less frequently, in different degrees, symptoms analogous to those which we observe during the course of febrile diseases which are not intermittent. — LOUIS.

the access, and the intervals of the access, for twenty successive days, and vomiting when he drank too copiously, took food difficult of digestion, or medicines in the form of powders.

Nausea occurred in four cases of tertian fever of a *varied type*; once during the access, for a single time only, and on many different occasions during the interval of the fever in the others. Three patients had vomiting; two between the accesses and, frequently, one during the access, and once only.

SEC. 5. — Tongue and Fauces.

1st. The tongue was redder than natural in six individuals affected with *quotidian fever* during two or three days, and while there was no febrile excitement. It was merely dry in another during the access, in another who had vomiting. This same dryness without redness occurred during the space of from three to eight days in three cases of *tertian fever*, in one of which there was diarrhœa. The tongue was red and moist in another person who had neither vomiting nor diarrhœa. It was in the same state in two of the subjects affected with *quartan fever*, many of whom were examined during the access. It presented but very little dryness in three of the cases in which the type of the fever changed many times; there was no diarrhœa in any of them.

Supposing that those cases in which the tongue was a little more red than natural, could be thought to be owing to a slight degree of inflammation, they were not numerous, and were in proportion to the other symptoms.

2d. In relation to the fauces I observed as follows. Four patients affected with *quotidian fever* had more or less marked redness of rather a large part of the fauces, accompanied with pains, and in one of them the velum palati and amygdalæ

were enlarged and tense. The same redness with the same increase of size of the same organs occurred in two cases of *tertian fever*; in two others there was a simple redness with pain in the velum palati and in the pharynx. These parts presented nothing remarkable in subjects affected with *quartan fever*, but two of the patients in whom the disease took successively *various types* had the pharynx and uvula more or less red.

These facts, the nature of which cannot be doubted, seem to me to be very precious, inasmuch as they demonstrate more clearly than any others the part which the different organs of the economy take in febrile affections, even when intermittent.

SEC. 6. — Cerebral Symptoms.

Cephalalgia occurred in all the cases of *quotidian fever* except three. It was constant in six, limited to the time of access in the others; it was more considerable during the hot stage than during the cold in twelve; the fact was exactly the reverse of this in six; very nearly equal during the periods of heat and cold in the others. It was accompanied by great restlessness in many patients, by more or less marked delirium in five. The delirium occurred every other day in one case, and returned at each access in another, during eight days.

Save two subjects all affected with *tertian fever* had cephalalgia, five without interruption, the remainder during the continuation of the access only. It was greater during the cold stage than during the hot in six cases; the contrary was the case in the others. Three patients had vertigo; a fourth had drowsiness; a fifth had restlessness during

the night ; three a little delirium. This symptom occurred only once in one of them ; it returned at four successive accesses in the others.

Seven out of eight patients affected with *quartan fever* had cephalalgia, one of them after the access, the others merely during the access, especially during the hot stage. No one of them had delirium.

All of the patients except four in whom the fever took *various types* had pain in the head, five constantly, the rest during the period of access merely. This symptom was more marked during the sweating than during the other stages in one case, during the hot stage in two cases, during the chill in three ; it was almost uniform through the whole of the stages in the remainder of the subjects. Only one patient had delirium during many accesses.

SEC. 7. — Organs of Sense.

1st. Copious and repeated *epistaxis* occurred in seven cases of *quotidian fever*, in two cases of tertian, in two of quartan fever, and in this last the discharge of blood was more copious than in the others.

2d. Four patients affected with *quotidian fever* had *buzzing* and *whistling in ears* ; a fifth had *deafness*. Buzzing was experienced in one case of tertian fever, and, likewise, in one of those in whom the affection underwent several different types.

3d. One patient at the ninth access of a quotidian fever had an *eruption* somewhat like urticaria ; three had pustules upon the lips four or five days after the commencement of the affection. The same eruption occurred between the fifth and ninth days of a tertian fever in four cases, and in a fifth, red pimples, which did not suppurate, came out after many ac-

cesses, over nearly the whole surface of the body. I observed similar pimples in a patient affected with quartan fever on the day after his admission into the hospital, and in one of those in whom the affection changed its *type*, there was an abundant eruption of red spots.

SEC. 8. — Pain in the Loins and Extremities.

Thirty out of forty subjects affected with *quotidian fever* had pains in the loins and extremities, some of them in a constant manner, the very large majority during the access only.

They were entirely wanting in thirteen subjects in whom the fever had a *tertian type*; they were constant in three of these only; during the access in the others, and they were more severe during the hot stage than during the chill in all the cases excepting two.

They occurred in four cases of *quartan fever* during the access, and only during one of the periods of heat or cold.

Four only of those in whom the fever changed its *type* had pains in the limbs and loins. A fifth had spasmodic movements of the extremities during the access from the hundred and seventieth to the hundred and ninetieth day of the affection, and in one case in which the spleen was very large there was œdema of the lower extremities.

SEC. 9. — Cough.

Cough occurred from time to time, 1st, in eighteen patients affected with *quotidian fever*, during the access only in four patients from whom I obtained the requisite information, once during the cold stage, three times during the hot. 2d. In thirteen patients affected with *tertian fever*, seven times during the cold stage, once during the hot, after the fourth or fifth access. 3. In thirteen cases in which the fever changed *type*, four

times during the access only, and during either the cold or hot stages merely.

Thus the morbid changes in organs and functions observed during the course of continued fevers were observed, likewise, in those which were intermittent. The difference consisted in hardly any thing more than degree.* A rather large number of patients had pains in various parts of the abdomen, diarrhœa, nausea, vomiting, redness and dryness of the tongue, redness and pain in different parts of the fauces, connected in some cases with a very marked swelling, many species of eruption upon the surface of the body and on the lips, anxiety, delirium ; so that whatever was the cause of the febrile action, whether it was continued or intermittent, we see it always accompanied by derangement of the same functions, changes in the same organs ; and this connexion or this dependence must appear the more evident from the fact that the alteration of the functions was frequently limited to the time the access continued.

It cannot, moreover, be pretended that the viscera whose functions were more or less altered, were the cause or the seat of fever, that the febrile action was sometimes the effect of a lesion of the stomach, sometimes that of an alteration of the bronchia, or of the organs composing the fauces, &c. &c., since in the majority of the cases in which there was derangement of a function, or a lesion of some organ occurred, it was

* This expression, made use of by Louis, when taken in connexion with the previous sentence, has been thought to be obscure. Some have thought that he meant to allow that intermittent fevers were entirely similar in their nature to the typhoid affection. I would refer those who think the question doubtful, to the opinion of Louis upon the subject, page 248 ; also to note on Observation 44. — H. I. B.

only on the third or fourth access. It is well to remark, likewise, that rather frequently there were in the same subject many symptoms announcing derangement of many functions; that the spleen was manifestly diseased from the commencement in many cases in which the fauces were inflamed afterwards; and this is a new reason why we should not place the seat of the disease, sometimes in one part, at others in another, and why we should not consider as accessory or consecutive symptoms those which we have in succession described.

ARTICLE XII.

CONDITION OF THE BLOOD DRAWN IN VENESECTION.*

I. IN PATIENTS WHO DIED OF THE TYPHOID AFFECTION.

Twelve patients were bled at various periods of the disease, and in five the blood was covered with a buffy coat. This coat was rather firm, thick and semi-transparent in one patient in whom venesection was performed ten days before death; it was soft, grey, greenish, gelatinous in the others.

The coagulum was not contracted save in one of the cases in which it did not have a buffy coat.† The condition of the blood drawn from the veins did not always correspond

* Venesection was generally well performed in all the cases of which we are speaking, and although the size of the opening made in the vein and other circumstances seem to have an influence upon the coagulation of the blood, I have not thought it necessary to make mention of them, inasmuch as these circumstances were the same for each group of facts. — LOUIS.

† I know not what vessel was made use of to receive the blood in these cases, but commonly in the French hospitals a shallow metal basin is used for this purpose. This, of course, influences the coagulation of the blood. — H. I. B.

to what was observed after death ; that is to say, fibrinous coagula were found on the corpse of individuals whose blood during life had a soft, gelatinous buffy coat.

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.

A buffy coat was found in these patients still more rarely than in the others ; in fact, eight only out of thirty-two had it. It was thick, yellowish, semi-transparent in one case ; red and dense in another ; it was greenish, generally thin and soft, and gelatinous in six. There was no contraction of the clot save in four patients, in one of whom the blood had a slight buffy coat.

III. IN PATIENTS AFFECTED WITH OTHER ACUTE DISEASES.

The blood was attentively examined in twenty-four patients who died of *pneumonia*, and it was covered with a buffy coat in nineteen of them, which was firm and thick at each bleeding in fourteen ; it was somewhat soft and rather infiltrated in the others. As in these, venesection was performed at many different periods in the cases in which the blood was not buffed.

The buff coat was more constantly found in fifty-seven pneumonic patients who recovered ; in fact, it failed to occur in six only of them, and in all it was more or less thick. The six patients in whom the blood was not buffed had venesection performed upon them twice, and the coagula were the same at both times the operation was performed. The buff did not appear until at the second bleeding in five cases, and the contrary was the fact in some other cases. There was considerable contraction in thirty-three subjects.

The blood had only a slight buffy coat in three cases out of five of *hydrocephalus*, of *softening of the brain*, or of *apoplexy* ; and in another relative to a patient who died of softening of

the brain, not only was there no buff, but the blood did not contract, but remained in a semi-fluid state.

In five subjects affected with *scarlatina*, *variola* and *measles*, the termination of which was fortunate, the blood was covered by a thin buff not very firm, save in one case of *scarlatina*, in which it was firm and thick.

It had this character in *erysipelas of the face* five times out of seven, and in four cases of *angina gutturalis*. It was soft in a fifth. The buff was, likewise, firm and very thick in nine tenths of the individuals affected with *rheumatism*. Two subjects affected with *zona*, having been bled, did not have it. It was rather thick in three cases of *erythema marginatum*, in which the febrile action was well marked ; it was, on the contrary, thin in four of the fifteen patients affected with *pulmonary catarrh* who were bled. The others did not have any of it.

Finally, we see that the buffy aspect and the coagula seemed to depend upon the same circumstances, since in those affections in which the blood was rarely covered with a buffy coat, or in which it was thin and gelatinous, the coagula were not contracted save in a very small number of cases. The condition of the blood, like the symptoms, was very nearly the same in subjects affected with the same diseases, whatever the termination happened to be, but it presented differences more or less remarkable according to the kind of disease with which the individuals were affected ; so that if the symptoms of the typhoid affection differ much from those of other diseases, the same is true with regard to the condition of the blood, except that of patients affected with cerebral diseases, who are too few in number, unfortunately, for me to be able to compare them rigorously in this respect with those who experienced the typhoid affection.

But if the alteration of the blood is constant during the course of these different acute diseases, is it consecutive or anterior to their commencement? It is a necessary consequence of disease; is it sometimes the cause? In the actual state of science it is impossible to answer this question, and it is easily perceived that much uncertainty must exist upon this point, since venesection, the surest mode of demonstration, is never made until a person is ill, and if then the blood is but very slightly diseased, we may believe it to be consequent upon the disease, however soon after the first appearance of the symptoms, we may perform the operation of venesection. Nevertheless, this alteration, far from being impossible, is, on the contrary, very probable in many cases. It is, likewise, very probable, since every day we see local affections occur in animals, in consequence of the injection of certain substances, particularly poisons, into the veins, and since many viruses, those of variola and vaccination, for example, are probably transmitted by means of the blood. A change in the blood is probable also in many cases of diseases of organs which are visible, in some subjects affected with angina gutturalis and erysipelas, for example, preceded during a greater or less length of time by general symptoms, which cannot be attributed to the local affection which does not exist at that period, and have, nevertheless, a cause which would seem rather to reside in the blood than any where else. Similar symptoms, more or less violent, precede the eruption of variola. Now, is it not probable that the blood is the source of them rather than a deeply seated organ, which cannot be marked out with certainty? I allow, these probabilities are not proofs, but they prove that the point in doubt is of extreme importance to be examined, and we cannot pay too much attention to it.

CHAPTER II.

DIAGNOSIS.

As the diagnosis of diseases depends upon an exact knowledge of the symptoms peculiar to each one, and, likewise, upon the order observed in the occurrence of these symptoms, I shall in this place proceed to examine our facts under this two-fold point of view. And as the details I have given in the previous chapter leave me but little to say upon the former topic, I shall treat in an especial manner of the latter.

If pains in the abdomen with diarrhœa, (which occurred in all the cases we are studying except three), are of much importance towards enabling us to decide upon the time of commencement of the affection, they are of much less importance as a means of diagnosis; either because they are found in very nearly equal degrees of severity in enteritis, properly so called, or because they occur, (though less frequently, and at a later period of the disease,) in the course of other acute febrile affections. The gastric symptoms, the pains in the epigastrium, nausea and vomiting, are of still less value under the present point of view, since they occur in very nearly the same manner, and, at times, in a more remarkable degree in other affections. I could say as much of the heat of the skin and of the acceleration of the pulse, although they were more marked during the course of the typhoid affection than of any other; of the headache, of the pains in the extremities, and even to a certain point of delirium. But the other symptoms, some of which, considered in themselves, do

not present any grave aspect, are more or less characteristic of the typhoid affection, and merit great attention.

Among these are epistaxis, which occurs so often in this affection ; the rose-colored, lenticular spots, which are of still greater importance, since they are observed, nearly without exception, in all the cases of the typhoid affection and very rarely in other diseases ; *sudamina*, when they are large and numerous ; meteorism ; a blackish and thickly coated tongue ; drowsiness ; stupor ; extreme debility, when it is not proportionate to the other symptoms ; eschars upon the sacrum ; ulceration and entire destruction of the skin upon which blisters have been applied ; spasmodic movements, or permanent contraction of the muscles of the different parts of the body, phenomena which are very rarely observed, or which do not occur in other acute affections, or which exist in a moderate degree when observed at all. When more or less of these symptoms exist in the same subject, we cannot doubt that he is attacked with the typhoid affection, that the elliptical patches of the ileum are the seat of the lesion which has been described, for if each one of these symptoms is observed occasionally during the course of other acute affections, such is not the fact with a combination of many of them.* There is no difficulty in the diagnosis when all these symptoms co-exist, but the most important of them sometimes fail to appear, and the majority exist at a certain period only of the affection. In order, therefore, to make always a correct diagnosis, and at a sufficiently early period, we must examine with care the order and succession of the symptoms which, when considered in an isolated man-

* We shall see shortly two observations of erysipelas of the legs which, to a certain extent, are exceptions to this rule (Obs. 50, 51). But the disease being external will prevent us from falling into the error, which if this were not the case we should be liable to make. — LOUIS.

ner, will not be sufficient to enable us to determine accurately upon the existence or non-existence of the typhoid affection.

If the disease is in a young subject, if it commences as it usually does in the majority of the cases, without any appreciable cause, by a more or less violent chill, pains in the abdomen, diarrhœa, anorexia and thirst ; if considerable debility comes on speedily and greater in degree than that which we observe in cases of enteritis, properly so called ; if the patients tremble when standing erect, if the febrile action is much greater than in this last disease, we may either affirm positively the existence of the typhoid affection, or, at least, strongly suspect it, and much more than any other disease. New symptoms soon appear and dissipate all our doubts ; rose-colored, lenticular spots appear between the eighth and twelfth days of the disease upon the abdomen and chest ; there are buzzing in the ears, vertigo, a little drowsiness and cough, a dry, sonorous râle over the whole chest, slight meteorism ; from this time the character of the disease is evident. It is useless, then, to wait, in order to make out the diagnosis, for delirium and spasm, and for a still greater reason, because they do not occur in all the subjects.

Those cases in which the affection pursues its wonted course, are not difficult to be decided upon, but this is not the case when the circumstances are different, when, for example, the patients do not have for many days in succession either diarrhœa or pains in the abdomen, or when these pains and liquid dejections are rare. Nevertheless, at that time even, and before the development of the gravest or most characteristic symptoms, the diagnosis may be very nearly as certain as when the diarrhœa is more or less severe. For if there is no diarrhœa we cannot imagine the affection to be a simple enteritis, properly so called ; and if the febrile action is evident, while no organ gives marks of having any decided lesion ; if

the appetite is either very much diminished or entirely gone, if the patient is of the age and in the circumstances mentioned above, as these symptoms are those of typhoid fever alone, we can suspect that alone to be the disease, as I have already remarked in my reflections upon many observations.

But in these cases as in those in which the disease pursues its wonted course, the diagnosis becomes more evident according as we examine our patient at a later period of the disease, for then the most characteristic symptoms occur, and if the whole of them do not come on, some of them are found, the presence of which, when connected with the course of those which are the least important of them, will remove all doubt upon the subject. When meteorism is absent, there are somnolency, delirium, extreme debility, *sudamina*, and no other affection presents this group of symptoms.

The disease can be recognised, likewise, in those cases in which the characteristic symptoms are less numerous or very transient. If, for example, a very young person (for youth is a necessary qualification) has a slight diarrhœa; if this diarrhœa is accompanied by a little more febrile action than that which occurs in enteritis, properly so called; if the looseness of the bowels does not yield to the use of mild demulcents and diet; if the fœcal matter is, after a certain time, mingled with a moderate quantity of either liquid or clotted blood; if there have been at times a little meteorism, buzzing in the ears and a little deafness, and, likewise, considerable debility, although we should not discover either *sudamina*, or rose spots, or delirium, we must believe in the existence of the typhoid affection (Obs. 44). We shall have still stronger proofs of this in the succeeding chapter, when we shall show the facts relative to the latent forms of the disease.

From this short discussion, and from what precedes, we might designate the typhoid affection thus ; an acute disease marked by a febrile action more or less intense ; variable in its duration ; peculiar to young persons, and principally those who have been but recently placed in some circumstances entirely new to them ; the cause of which is unknown ; commencing with violent chill, anorexia, thirst, and in a great majority of cases, with colic pains and diarrhœa ; followed soon by somnolency, stupor, delirium, meteorism, sudamina, rose-colored, lenticular spots, eschars upon the sacrum, more or less deep ulcerations of the skin in parts occupied by blisters, deafness, various spasmodic movements or permanent contraction of the limbs ; some of which symptoms disappear after a certain time, while the others go on increasing, and, for the most part, in a regular manner until the patients die, or they diminish more or less gradually, and at length disappear entirely, if the disease terminates favorably ; and the anatomical characteristic of the affection is a peculiar change in the elliptical patches of the ileum.

What we have just stated and the facts previously given relative to the symptoms, doubtless show sufficiently the difference between the typhoid affection and enteritis, properly so called ; nevertheless, as they have been supposed, and are still supposed by many persons to be identical, it will not be wholly useless to draw a comparison between the two, and show how much they differ from each other in the three-fold respect of their seat, symptoms, and their gravity.

With respect to the gravity of the symptoms there is an extreme difference, for whilst a third part of the patients affected with the typhoid affection, whom I have observed, have died, enteritis has never proved fatal save in two cases

out of the eighty-six subjects of whose histories I have notes ; and, moreover, one of these cases was that of a woman who had had for some months an affection of the ovarium, which existed at the moment the enteritis began, and of this case I ought, perhaps, not to take any notice at present, inasmuch as my analysis refers only to those individuals who whilst in perfect health, have been seized with some one of the diseases which we have successively examined. However, it is so true that acute enteritis is so rarely fatal in *healthy* subjects, that it would be very difficult to prove its exact seat rigorously, if it was not of very frequent occurrence in those who die of other acute affections.

In these, in fact, as we have seen in the second part of this work, the mucous membranes of the large and small intestines were frequently altered, softened, red or pale, thickened or otherwise in various degrees, but the elliptical patches were healthy, or partook in part only of the lesion of the surrounding mucous membrane, and had no peculiar alteration in any case, whilst in *all* of the subjects who died in consequence of the typhoid affection these same patches were more or less altered, softened, thickened, red, or bluish, ulcerated or otherwise, and in many of the cases there was no other lesion of the intestinal canal. Moreover, certain secondary lesions, the different ulcerations of the mucous membranes, so frequently observed during the course of the typhoid affection, occurred in no case of proper enteritis ; so that, in fact, there are very few diseases more entirely distinct in their seat and nature than these two, and in this last point of view they differ more than pulmonary catarrh from pneumonia, measles from small-pox, since the secondary lesions which come on in those diseases present differences of proportion merely, and between the typhoid affection and enteritis this difference is not the only one.

With respect to the symptoms, the same difference is always found, whether we study them in patients who die or in those who recover. Whilst on the one hand, the typhoid affection commences generally with a febrile action which is commonly severe, and which is soon followed by a loss of strength, greater in proportion than the other symptoms, likewise by somnolency, stupor, delirium, an eruption of rose-colored lenticular spots, and very frequently by *sudamina*, epistaxis, buzzing in the ears and deafness, more or less severe spasmodic movements and meteorism ; in enteritis, on the other hand, the febrile action is generally slight, the debility is inconsiderable, or simply in proportion to the frequency of the alvine evacuations, somnolency extremely rare, and in proportion to the debility, without ever being comparable with that which occurs during the course of the typhoid affection ; the rose-colored, lenticular spots and epistaxis, are not of more frequent occurrence than in any other disease ; there is no deafness nor stupor, nor *sudamina*, or, at least, these occur very rarely, nor meteorism, nor eschars, nor delirium, and when the disease terminates favorably convalescence is very rapid, the most simple means produce it, whilst in the typhoid affection, convalescence, whatever has been the treatment, is nearly always very long, so that the utility of the remedies employed against it heretofore is still a subject of doubt in the best minds.

But these differences are not the only ones, for there are others which are, perhaps, still more remarkable. We observe the typhoid affection in young subjects only, in peculiar circumstances, usually in those who go from one country to another, during the first year of their sojourn in the latter place ; and enteritis occurs at all ages and under all the circumstances of life, frequently after the application of evident causes, the removal of which is sufficient to re-establish the

functions. We can by means of irritants more or less energetic and of long continuance produce an enteritis, but we cannot, at least to my knowledge, excite the typhoid affection by any means whatever. Enteritis may occur an indefinite number of times in the same subjects, but it is doubtful whether the same person ever had the typhoid affection twice.

We cannot, therefore, establish a comparison between the typhoid affection and proper enteritis, and it would be as unreasonable to confound all the acute affections of the alimentary canal together, merely because they all are accompanied by diarrhœa, as it would be to confound those of the lungs, because all of them are accompanied by more or less dyspnœa.

The following observation relates to one of those patients who died of acute enteritis, properly so called, and we can very naturally refer to it now.

FORTIETH OBSERVATION.

Pains in the epigastrium and below the umbilicus ; numerous dejections ; nausea ; vomiting ; anorexia ; thirst ; moderate heat of the skin ; continuance and gradual progress of the same symptoms without meteorism or delirium until death. Almost complete destruction of the mucous membrane of the colon throughout nearly its whole extent ; thickening of the submucous cellular membrane.

A GARDENER, living at Maisons (near Paris), came to the hospital of La Charité, Sept. 28th, 1824, and said that he had been ill nine days. Being ordinarily of good health, he assured me that he had committed no excess, and that he did not know to what he could attribute his disease.

In the beginning, pains in the epigastrium and below the umbilicus, vomiting, liquid dejections, anorexia, thirst. The stools were very numerous on the following days, and mixed with a little blood until the admission of the patient into the hospital. The nausea and vomiting had continued and came on from the slightest cause, after taking beef-tea or warm drinks, and these symptoms diminished only on the fifth day of the disease, after the application of thirty leeches to epigastrium. The pains continued in the same degree, and some chills came on three days after the commencement. However, there was no headache, nor pains in the limbs. The patient took for drink lemonade and a flaxseed ptisan, committed no error of regimen, and save in the application of leeches, the disease had been left to itself.

On 29th, appearance of suffering and anxiety, neither somnolency nor stupor ; eyes, red, injected, not smarting ; hearing, acute ; considerable debility ; obscure vision when walking or on standing erect ; tongue, clean, soft and moist ; mouth, bitter ; very little thirst ; easy deglutition ; no meteorism ; pain in the epigastrium and hypogastrium, especially on the left side, increased by pressure ; frequent dejections, accompanied by heat and piercing sensations in the anus, mixed with small clots of blood ; no nausea after drinks ; pulse, very much contracted, at eighty ; heat of the skin rather below than above its natural state ; hands and fore-arms, bluish ; anxiety of patient variable, less at the end than at the commencement of the examination.

(Gum potion with one grain of opium ; rice ptisan with gum syrup ; flaxseed enema with half a grain of opium.)

Pains in the abdomen continued day and night, of the same character, accompanied by burning heat internally ; the de-

jections were very numerous (about forty); fæcal matter, more or less of a rose color; the patient had nausea, vomited during the night some beef tea given him by the ward tender, and was very hot. On the next day the tongue was a little less moist than on the preceding day; the pains still great; there was no anxiety; the pulse and the heat of the skin had not evidently altered, and the abdomen was slightly meteorised.

(Gum potion with extract of opium, two grains; flaxseed enema with one grain of opium; cataplasm upon the abdomen; yolk of an egg mixed with sugar and water.)

The number of dejections was reduced to fifteen; there was still, however, a little blood mixed with the fæcal matter, and six times there was vomiting of green bile. On 1st of October the tongue was moist, slightly greyish at its circumference; burning pains in the hypogastrium as on the preceding day; eyes less red; face more natural; all the abdomen, especially the hypogastrium, was very sensible to pressure.

(Flaxseed enema with two grains of opium; cataplasm upon the abdomen.)

From this time until death took place on 7th, a short time after the visit, I observed as follows. The dejections were in number from fifteen to thirty during the day; they were involuntary during the last day; the abdomen was not distended or was contracted; it was less painful than before; there was frequent vomiting of a green substance from the 5th to the 7th. The tongue was always moist, smooth, of a pale rose color at edges; the thirst and heat of the skin were considerable; the pulse was feeble, contracted, regular, from seventy-five to eighty; the respiration but little accelerated. The strength gradually diminished, but the patient was not thereby prevented from getting out of bed, and from going to the close

stool even on the day he died. His face had an appearance of suffering, and on the 4th he said he had no hope. He continued to enjoy the full use of his faculties, save during the last two nights, when he had a little delirium, and he answered my questions two hours before death, notwithstanding the signs of anxiety which he showed; constant motion of the head from right to left. There were no rose-colored, lenticular spots at any time.

The opium in enemata was continued until the 4th; a blister was applied to the hypogastrium on the last day, and sinapisms to the lower extremities on the 6th.

Opening of the corpse twenty-one hours after death.

EXTERIOR. — Considerable emaciation; cadaveric rigidity very marked; no ecchymoses.

HEAD. — Exterior surface of the *dura mater* covered with minute drops of blood; traces of effusion under the *arachnoid* in the occipital region; half a spoonful of clear serous fluid in each one of the lateral *ventricles*. *Cortical* substance of the brain of a pale rose color throughout; the *medullary* was very much injected and of a good consistence.

NECK. — The *pharynx*, *epiglottis*, *larynx* and *trachea*, natural. Some frothy mucus in the bronchia.

CHEST. — *Heart* and *aorta*, perfectly healthy; about four spoonfuls of bloody serous fluid in the right *pleura*; *lungs*, not heavy, red in front, purplish behind, where there was neither congestion nor plenification,

ABDOMEN. — No effusion into the peritoneal cavity; *æsophagus*, healthy. *Stomach*, distended with gases; its lining membrane was covered over the greater part of its extent by a viscid, thick mucus, which it was difficult to separate from the membrane, even after two hours maceration,

weighing about four ounces ; it was of a bright red color, especially in the great cul-de-sac, where it was mammeloned ; it was of a proper thickness ; a little softened, save in the part which was mammeloned, which gave strips ten lines in length. The *small intestine* was slightly distended with gases ; its mucous membrane was healthy in the jejunum, afterwards red and softened, especially in the four feet nearest the cæcum, where the membrane gave strips hardly one line in length. Throughout the whole length of the ileum there were many white miliary granulations, which were at first few in number, but towards the end they were more numerous, so that in the neighborhood of the cæcum they were not more than three or four lines distant from one another. The *elliptical patches*, opposite the mesentery, were thin as usual, and they formed a contrast by their whiteness to the surrounding redness of the mucous membrane, and half an inch from the ileo cæcal valve there were three small ulcerations, from three to four lines large, which had a cellular surface and were of a pale hue. The *large intestine* was a little meteorised, and contained a small quantity of reddish substance of rather a bright red color, and moderately fluid. Its mucous membrane was almost entirely destroyed, but unequally so. It was composed of patches, as it were, of the membrane in the cæcum and ascending colon, of which they occupied about a fourth part ; these patches were smaller-like granulations, in the transverse colon, and covered hardly an eighth part of the whole surface ; the mucous membrane was completely destroyed in the first six inches of the descending colon, and from that part to the anus the destruction gradually subsided, and one inch above the anus the membrane was not ulcerated at all. Every where in the first third of the intestine, in which traces of this destruction were observed, the mucous membrane was red, soft-

ened and thickened ; after which it was greyish and a little less thick. The submucous cellular membrane, which was exposed, was of a greenish white color, very much thickened, and of a firm texture throughout its whole extent, so that it was only with great difficulty that I was able to raise strips of it by means of very strong forceps, and it was half a millimeter thick, save in the ascending colon, where this thickening was less. The muscular coat was thicker and firmer than usual. The *mesocolic glands* were about as large as hazel-nuts, of a deep amaranthine red color, very much softened and contained no pus ; the *mesenteric glands* were a little larger than natural, of a healthy color and consistence. The *liver* was healthy ; the *bile* of the gall-bladder, greenish or blackish, and very thick ; the other *viscera*, even the *spleen*, were natural.

It would be difficult to find a less complex observation than this, in which the symptoms and lesions would be in more perfect harmony, and the case is the more worthy of interest, inasmuch as it is, as it were, a specimen of the majority of the cases of acute enteritis, and is equivalent, in some degree, to a general description. The affection commenced suddenly, without chills, by pains in the abdomen, numerous and bloody dejections, nausea and vomiting ; the vomiting returned on the slightest occasions, occurred spontaneously during the last days of life ; the dejections were very numerous, more or less red, and sometimes mixed with small clots of blood ; the febrile action and the heat of the skin were moderate ; there was neither somnolency nor stupor ; we observed a very slight delirium during the last two nights ; the strength was diminished only in proportion to the dejections ; the tongue remained nearly always natural ; the pains in the abdomen were severe

and burning; there was no meteorism; the patient died after nineteen days of suffering, and at the autopsy we found the mucous membrane of the stomach a little softened, red and covered with a thick glairy substance; that of the small intestine very red and very much softened in the neighborhood of the cæcum; three small ulcerations half an inch from this last, and the mucous membrane of the large intestine destroyed through nearly its whole extent.

It is sufficient to consider the condition of the different organs to be satisfied, that the large intestine was the original seat of the affection. The mucous membrane of the ileum was, it is true, very much softened throughout a portion of its length, but that of the colon was destroyed throughout nearly its whole extent; the submucous membrane corresponding to it was very much thickened; the mesocolic glands, very red, large and softened; the mesenteric, very nearly in a healthy condition; there could be, therefore, no doubt upon this point. It will, moreover, be easily believed that the transverse colon and the neighboring part of the descending colon were the parts which were the first to be affected; the destruction of the mucous membrane being more complete, and the submucous cellular membrane thicker in this part than in any other; so that the affection seems to have gone from the left to the right, and to have extended to the ileum only during the last days of life. The symptoms confirm what anatomy indicates, whether we refer to the dejections which had the character which they have from the commencement of dysentery, or the pains which were more severe in the left side of the abdomen than in any other point. It is, moreover, remarkable, that I never met with a similar lesion of the large intestine in a case of the typhoid affection, and that

the dejections never presented those appearances which they had in this case.

Thus the symptoms and lesions had very different characters from those which they present in the disease we are studying in this work. However, it may be replied that there were at the end of the ileum, near the cæcum, three small ulcers, and that I have considered this alteration as the anatomical characteristic of the typhoid affection, and, therefore, if primitively the disease was enteritis, it was afterwards complicated with the typhoid affection. To this I would answer, that the anatomical characteristic of this last consists in a more or less serious alteration of the elliptical patches of the small intestine ordinarily followed by ulceration; that as the ulcerations when observed were near the ileo-cæcal valve we may believe that they had their seat in the small patches of this part, and thus the objection is just; and there was, in fact, a complication, but during the last days of life only. And as inflammation of a pulmonary lobule does not give origin to any appreciable phenomena at the termination of acute diseases, we must not be surprised that no symptom revealed the existence of the three small ulcers near the cæcum. And a new proof that these ulcers were consecutive upon the alteration of the mucous membrane of the large intestine was the fact, that the part of the ileum in which they were found was that which is not the most seriously diseased in the typhoid affection, and which, moreover, we never find exclusively affected. This fact, therefore, is not contradictory to what we have previously seen, and if the complication it presents is extremely rare, it is owing to the very infrequent occurrence of such severe enteritis; in fact, I have observed no other example of it, and I esteem it fortunate that I am able to offer this to

the reader, and thus supply a deficiency which observation would, doubtless, have disclosed to him at a later period.

It is important, moreover, to remark that the cellular membrane which was observed in the small ulcers of the ileum was whitish ; it had not undergone the same alteration which is observed in that under the elliptical patches in the typhoid affection, and thus the resemblance of the lesions was not complete.

We must not forget an important fact upon which we have already remarked in another place.* I refer to the condition of the submucous membrane of the large intestine, which was very firm, and at least six times thicker than natural, and of a whitish color. This thickening we cannot doubt was consequent upon an inflammation of the mucous membrane, but not recent, for the white color is inconsistent with the idea of acute inflammation.

The gastric symptoms are, likewise, well worthy of notice, inasmuch as they occurred from the commencement of the disease, and the character of them during the last five or six days of life (spontaneous vomiting of bile), might have led us to fear the existence of a much severer lesion of the mucous membrane of the stomach than was really found. This fact is the more remarkable from this, that the reverse of this usually takes place in the typhoid affection, in which the gravest lesions of the stomach are not accompanied by any characteristic symptom ; and this can be accounted for, according to the facts given above, only by the absence of cerebral symptoms in one case, and their existence in more or less severity in the other. I would remark, moreover, that the quantity and viscosity of the mucus adhering to the mucous membrane

* "Researches upon Phthisis," page 98. Art. 135. Paris Edition. —
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of the stomach were in proportion to the degree of its lesion, and we observe it with this character, and in this proportion, only when the softening is slight, which is a proof of the existence of inflammation in a moderate or a chronic form.

The medullary substance of the brain was very much injected; the cortical of a rosy hue throughout, although properly speaking, there were no cerebral symptoms. This is a new fact in support of what I have previously stated of the impossibility of explaining, by the apparent condition of the brain, the disorder of the cerebral functions, in the course of the typhoid affection.

Is there any necessity, after all the remarks already made, of observing that in this case, in opposition to what occurs constantly in subjects who die of the typhoid affection, the spleen was healthy, the bile thick, and of a dark color?

The reflections, which will be made in reference to cases in which the disease was latent, will complete all that will be wanting in regard to the history of the diagnosis of typhus.

CHAPTER III.

LATENT FORM OF THE TYPHOID AFFECTION.

FORTY-FIRST OBSERVATION.*

Chill, increased heat in the beginning, moderate thirst, and slight diminution of the appetite ; afterwards, pulse calm, skin moderately hot, thirst and appetite as before, until the *twenty-third day* of the disease, when *perforation* of the intestine took place. Perforation of the small intestine ; thickening without reddening of the elliptical patches ; two mesenteric glands enlarged near the cæcum merely ; nearly all the viscera well.

A CARPENTER, æt. 25, at Paris seven months, of medium size, moderately strong constitution, dark hair, large chest and of good habits, was admitted into the hospital of La Charité, Dec. 21, 1822, and then said he had been ill eighteen days. His disease had commenced in the evening, after a slight repast, by a chill, followed by considerable heat, diminution of the appetite and constipation ; the heat and thirst remained always slight, and the chill had not recurred. The patient had taken every day a little wine, or wine and water, and a very little food, which had caused neither nausea nor pains at the epigastrium, but were followed by pains in the arms. A slight cough had come on in addition to these other symptoms, du-

* This observation, with three of those which follow, were given in my Memoir upon Perforation of the Small Intestine. I have given in this work some symptoms which I thought I could omit without difficulty in the Memoir. — LOUIS.

ring the five days previous to our seeing him ; and the patient, who came to the hospital for the purpose of obtaining advice merely, consented to stay there. He had experienced no pains in the abdomen.

On the next day, 22d, face, natural ; intellect, good ; senses, perfect ; slight debility ; no pains in the limbs ; sleep, calm ; tongue, natural ; moderate thirst ; appetite, slightly diminished ; abdomen, generally supple and not pained by pressure ; urine, easy ; constipation for two days ; pulse, sufficiently large and full, at sixty-eight ; skin, not very hot ; respiratory murmur mingled with a dry, sonorous, and sometimes whistling râle ; sputa, clear ; no oppression at chest.

(Lemonade ; gum potion ; three mugs of rice water ; two cups of beef tea.)

The night was passed calmly. On the next day, 23d, the tongue was a little red at its circumference ; the mouth and abdomen were in the same state apparently as on the preceding day ; the pulse was a little accelerated ; the skin hot ; respiratory murmur, mingled with a little whistling râle ; the patient experienced no pains in any part.

(Same prescription.)

On 25th, except in the color of the tongue, which was whitish in the centre, the patient was in the same apparent condition as on the first day. He walked about on the next, as he had done from the time of his entrance into the hospital, and complained of nothing.

But during the night of 26th to 27th, at three, A. M. he was *suddenly* seized with a very severe pain over the whole abdomen, which continued without being accompanied by chills, nausea or vomiting.

On 27th, at eight, A. M., the features of his face were very much contracted, the face was sorrowful and sunken, yellow-

ish and expressive of great pain and anxiety ; the eyes were sufficiently natural ; the mind and senses were perfect ; the patient remained perfectly immoveable for fear of increasing the pains which the slightest movement aggravated greatly ; his face more than his words expressed his deep suffering ; his thirst was very great ; the tongue was red and little moist ; the teeth, dry ; the abdomen did not allow of the least pressure being made upon it ; it was not meteorised ; it did not feel internally more hot than other parts of the body, and drinks did not exasperate the pains which the patient felt there. The pulse was very much accelerated, contracted, and sufficiently resistant to pressure ; there was a slight cough. The nature of the accident was immediately discovered ; thirty leeches were immediately applied to the abdomen, and demulcent drinks were ordered to be taken by mouthfuls. The pain lessened after the leeches fell off, and some new ones were applied in the evening.

At eight, P. M., nausea and vomiting, which continued during the whole night.

On the next day, 28th, the appearance of the face was the same as on the preceding day ; the color of the skin was almost cadaverous ; the intellect was in a perfectly healthy condition ; the motions of the body were a little less painful ; the tongue was red at the edge and green in the centre ; there was almost constantly a vomiting of green bile ; the abdomen was very distended and tympanitic, very sensible to pressure ; the pulse was small, sunken, at a hundred and forty-five ; skin, of a temperature nearly natural ; respiration, very frequent.

(Ten leeches.)

No vomiting during the whole day, but very intense pains during the night. On the next day they were almost entirely gone, and were experienced on pressure only ; the pulse

and respiration were still more accelerated than on the preceding day ; the face and intellect were the same.

At mid-day, the patient turning towards a companion, said he should not live long, and asked for some drink, and died instantly, while vomiting bile copiously.

Opening of the corpse twenty hours after death.

EXTERIOR. — Nothing remarkable.

HEAD. — Cerebral veins much distended with blood ; the *lateral ventricles* of the brain contained a little serous fluid, and it was of a reddish hue in the left. *Medullary substance*, very much injected.

CHEST. — The *heart* was healthy ; the right auricle was distended by a great quantity of blood. The *pleuræ* contained about a tumbler full of red serous fluid ; the *lungs* were soft and not heavy, and on their posterior parts there were blackish spots, much larger externally than internally. The *bronchia* were of an obscure red color, not of a very deep hue.

ABDOMEN. — The anterior parietes of the abdomen adhered by means of a thin, soft, false membrane to the epiploon, and the peritoneum was more injected in this part than any where else. The circumvolutions of the small intestine were distended with gases, and were united to one another by means of albuminous, membranous secretions. A reddish, thick, turbid fluid, muddy, as it were, and of a strong odor, similar to that found in the last quarter of the small intestine, filled the lower pelvis, and had flowed into the flanks. The *mesenteric glands* were but slightly enlarged, save the two nearest the cæcum, but they had their natural color and degree of firmness. At the end of the ileum, at a foot from the cæcum, there was a perforation of the intestine two lines in diameter, situated in the middle of one of the ulcers which I

will soon describe. The jejunum presented no remarkable appearance, but throughout the whole length of the ileum there was a great number of *elliptical patches*, opposite the mesentery, from six to fifteen lines in their longest diameter, and from half to three quarters of a line thick, and thicker according to their proximity to the cæcum, composed almost entirely of the mucous membrane, which was greyish, and had many blue points in this same part, some of which (eight of those nearest the perforation) were ulcerated, while the others were not. These ulcerations were more or less large and increased in size in the same proportion that the patches acquired more thickness, and by them the muscular coat had been laid bare, and it was more thinned than natural in some points. Between these there were others of smaller size upon crypts which were clustered together, of irregular shapes, and in their centres there was a yellow friable substance. The mucous membrane of the *stomach* was covered with a viscid mucus; it was greyish in the neighborhood of the pylorus, of a rose color throughout the greater part of its extent, and of a good consistence. That of the *large intestine* was perfectly healthy. The *spleen* was a little enlarged and softened; the other *viscera* were natural.

In conclusion, the disease lasted twenty-six days, and commenced with symptoms similar to those which occur in many cases in which they become soon as grave as they are characteristic, but after this commencement the disease appeared to remain stationary; there were neither diarrhœa nor pains in the abdomen; the heat of the skin and thirst were inconsiderable; on the eighteenth day of the affection the patient's health was so little disturbed, that he came to the hospital merely for the purpose of obtaining advice, and consented

only with reluctance to take a bed there. This state of things continued during the first five days after his admission into La Charité; his pulse continued calm, his tongue natural; he walked every day in the garden; on the twenty-third day of the disease symptoms of perforation appeared, and at the autopsy the elliptical patches of the ileum were found thickened, some ulcerated, others not so, and one of them had a perforation in the centre of it, and consequent upon this were all the disorders usually attendant upon perforation, and, likewise, some very slight lesions of other organs.

Save in respect to some modifications I shall soon mention, the lesion of the small intestine did not differ in the least from what is observed in subjects who die of the typhoid affection, after having experienced the gravest symptoms. We cannot, therefore, notwithstanding their absence, fail of recognising the character of the disease in this case. This subject had the typhoid affection as much as he has had pneumonia, in whom we find hepatization of the lung, even if before death the inflammation may not have caused any of the rational signs peculiar to this disease. One case is not less certain than the others. The same happened in this case as that which happens frequently in phthisis. Long before the disease has caused any grave symptoms, before the lesion which constitutes it has become very much advanced, we find in some subjects that a tubercle situated immediately under the pleura, softens and causes a perforation which produces death very speedily. The subject is not less a phthisical patient because he dies in a manner different from that in which the majority of patients affected with phthisis die, and phthisis is the cause of death, as the lesion which constitutes the anatomical characteristic of the typhoid affection caused in this case perforation and death.

The doubts which might be raised in relation to the charac-

ter of the disease having been once cleared up, it is important to remark that the alteration of the elliptical patches of the small intestine being the only one which was of a grave character, it was, likewise, the only one to which we can refer the slight symptoms anterior to those of perforation; that these symptoms corresponded well enough with what is usually called gastric embarrassment (*embarras gastrique*); so that if the perforation had not taken place, and the ulcerations had cicatrized, it would probably have been said that the patient had derangement of the stomach and bowels, and we cannot doubt that this actually happens sometimes, and this is a powerful reason for submitting all affections whose seat is undetermined, or whose nature is unknown, to a rigid examination.*

The modifications relative to the lesions of the elliptical patches of the small intestine, of which I spoke a short time since, consisted in this; their color was a little different from natural; they were neither red nor bluish, as we have seen them in all the cases previously described, and they were but slightly softened. This we cannot attribute to a retrograde march of the affection, since there was no tendency to cicatrization in any part, and the edge of the ulcer which was perforated, differed not in the least from that of the others. So that we are led to conclude that in this case inflammation had

* This necessity will be perceived in a much stronger light, if we remember that a disease which is general in its origin, or which has its cause in the condition of the fluids, cannot fail of causing more or less speedily a local disease which it will be important to recognise. At least, we may suppose this to be true from all which has been previously stated in relation to secondary lesions, and from what happens in animals into whose veins injections of irritating liquids or poisons have been made, since at the opening of their bodies we find more or less grave lesions of one or many viscera, even when death has come on very quickly. — LOUIS.

but a small share in the production of the morbid changes of the patches, and that ulceration was the principal tendency. This tendency was confirmed by the almost total absence of re-action which it explains, and by the condition of the mesenteric glands which, with the exception of the two nearest the cæcum, were but a very little different from natural. This extreme tendency to ulceration is observed in other circumstances and other organs, in the cornea, for example, which is sometimes ulcerated without our being able to discover the cause of it in the violence of the inflammation, &c.

FORTY-SECOND OBSERVATION.

Chills for ten days; complete anorexia; very severe headache; thirst; diminution of strength slight; on twentieth day, slight diarrhœa, slight symptoms of pneumonia; on *twenty-fourth*, *perforation*. Numerous ulcerations in the ileum; corresponding mesenteric glands, enlarged, greyish and softened; ulcers in the œsophagus and stomach; spleen, enlarged and softened.

A cotton spinner, æt. 27, tall, ordinarily in good health, had been at Paris five months, when he fell ill at the beginning of August, 1824.

The disease had been preceded during some days by a slight diminution of the appetite, and it had commenced with intense headache, chills, thirst and anorexia. These symptoms had continued; the chills had returned irregularly every day during the first week, but they had ceased after a venesection, and ten days after, the patient had, on returning from a walk in which he had felt cold, a slight cough with bloody, viscid and rustysputa, for which venesection was

performed three times. On August 24th, the twenty-third day of the disease, and sixth of the cough, he was admitted into the hospital of La Charité, where I found him in the following condition.

Considerable debility ; face, moderately animated ; intellect, rather obtuse ; no appearance of uncomfortable feelings and of anxiety ; no headache ; sleep, not very good ; tongue, a little red at edges, yellow and villous at centre ; mouth, pasty ; great thirst ; deglutition, easy ; abdomen, supple and not pained by pressure ; three liquid dejections in the last twenty-four hours, without colic pains (a little diarrhœa during the last three days) ; skin, hot ; pulse, large, at a hundred and twenty ; moderate oppression ; cough, not frequent ; dry, sonorous râle over front of chest ; rather fine crépitation behind at the left side, in the lower two fifths ; mucous râle at the right side in the corresponding point ; sometimes a sort of gurgling ; sputa, rather copious, quite frothy, viscid, some a little rusty.

(Sweetened infusion of violets ; sweetened rice water ; gum potion ; venesection to $\frac{3}{4}$ viij. ; blister to the chest.)

The patient was sufficiently calm during the day, but in the middle of the night he was *suddenly* taken with violent pain in the lower part of the abdomen, and he had before the visit six liquid stools. At the visit he complained but little, his face was pale and purplish, he wished for more warmth, and covered himself very closely with the bed-clothes ; the whole abdomen was moderately sensible to pressure ; there were neither chills, nausea nor vomiting ; the skin was but slightly hotter than usual ; the pulse was rather large, as quick as it was on the preceding day ; the sputa, though still viscid, were no longer rusty ; there were hardly any traces of crepitation, and throughout the whole of the chest there was a vibrating

râle heard which made the parietes quiver ; the patient arose up in bed easily.

During the evening there was rather copious vomiting of bile. On the morning of the next day, the student whose duty it was to attend to blisters dressed that on the chest ; the patient sat up during the whole time. He then lay down, and three minutes afterwards, as I came near to examine him, he died.

Opening of the corpse twenty-four hours after death.

EXTERIOR. — There was nothing remarkable except an extraordinary enlargement of the abdomen, which was very much meteorised, and already bluish over a great part of its surface.

HEAD. — The *arachnoid* and *pia mater* were natural ; the *medullary* substance was of a good consistence and a little injected ; there was a spoonful of serous fluid in each one of the lateral *ventricles*, and half a spoonful of the same fluid at the base of the cranium. The *cerebellum*, the *protuberance* and *medulla oblongata* were natural.

NECK. — The *epiglottis*, *larynx*, *trachea* and *pharynx* were without any appreciable alteration.

CHEST. — The *heart* and *aorta* were perfectly healthy. There were some cellular adhesions at the posterior part of the left *lung*, which, like that of the right side, was light, soft and had no traces of congestion, save very slight ones at its posterior part. The *bronchia* had a rosy tint, and contained a small quantity of mucus.

ABDOMEN. — The *stomach* and small intestine were distended with gases. There were in the cavity of the abdomen from three to four quarts of turbid, yellowish, serous fluid, in which were albuminous flocculi, of the fætid odor which is peculiar to perforation of the intestine, and between the bladder

and rectum there was a large tumbler full of very thick con-cocted pus. In the *ileum*, two inches and a half from the cæcum, were two holes about a line and a half in diameter, situated in the centres of two ulcers which we will describe. The *œsophagus* presented through its whole length oval ulcerations, directed in a vertical manner, thirty in number, covering from three to thirty-six lines of surface, and larger according to their proximity to the cardia, formed by the destruction of the mucous membrane, which was healthy around. That of the stomach was yellowish and softened in its upper extremity, greyish, and of a proper thickness and consistence in its pyloric half, where it presented to the height of an inch and a half from the pylorus many small ulcers about a line in diameter. A similar ulceration, only somewhat larger, was observed in the duodenum near the valve of the pylorus. The convolutions of the *small intestine* were united together in many points by means of albuminous, membranous, greyish concretions, of a good consistence, and presented, likewise, patches of a sufficiently deep red, owing to the injection of the peritoneum. The *jejunum* contained a moderate quantity of bile ; its mucous membrane presented in the neighborhood of the ileum patches covered with grey points, and similar ones were seen in the ileum, and as far as its last four feet they had a natural appearance. Beyond this point there were twenty ulcers of irregular shapes, nearer the square than rounded form, with borders but slightly prominent and greyish, with smoothly cut edges about two lines large, principally composed of the thickening of the submucous cellular membrane. In the ulcers the muscular coat was seen a little reddened, more or less thinned and otherwise healthy. It was wholly gone, and the peritoneal coat alone remained in the centre of one of them. Finally, it had disappeared where the perforations ex-

isted. The largest of the ulcers terminated an inch from the ileo-cæcal valve, was two inches long and one broad, and between it and this valve all the circumference of the intestine was uneven, with many black points, and studded with small superficial ulcers. The *mesenteric glands* were greyish, enlarged, and a little soft; the mucous membrane of the large intestine was slightly softened in some parts, and perfectly healthy throughout the rest of its extent; the *liver* was flabby, but otherwise natural. The *gall-bladder* contained in the midst of a large quantity of fluid of a darker color than natural, a blackish calculus, about as large as a pea, and of a very rough exterior. The *spleen* was five times as large as usual; it had a blackish color externally and internally; its texture was moderately softened; the other *viscera* were healthy.

Between this observation and the preceding one the difference is not great, and, except in some accessory lesions, the two were nearly identical. There is the same absence of characteristic symptoms, the same aspect of the elliptical patches of the intestine, of which some were ulcerated, others not so. The commencement of the disease was rather more violent, the chills returned ten days in succession, there was complete anorexia, but the strength decreased but little; the patient walked about until the twentieth day of the disease, the period at which some little diarrhœa, some pneumonic symptoms, and soon afterwards all those attendant upon perforation occurred, and at the autopsy, the last twenty patches of the ileum were found deeply ulcerated, two of them perforated, their circumference of a greyish hue, as in the subjects of the preceding observations; the mesenteric glands were enlarged, of a sufficiently natural color, and a little softened; many ulcers in the œsophagus and stomach.

Notwithstanding the repetition of the chills during the first ten days of the disease there was but a slight reaction, and the color of the elliptical patches of the ileum with that of the corresponding mesenteric glands, seems to me to show that in this case as in the other, inflammation had but a small share in the production of the ulcers.

But was it possible, in the absence of all characteristic symptoms, for there were neither delirium, stupor, rose-colored, lenticular spots, sudamina nor meteorism, was it possible to recognise, or, at least, to suspect the character of the affection? The severity of the febrile excitement, the complete loss of appetite removed all idea of the disease being merely some gastric embarrassment (*embarras gastrique*); there was nothing which indicated an enteritis, properly so called, disease of the liver, of the kidneys, or the thoracic viscera (before the pneumonic symptoms); and as the typhoid affection, of which the symptoms are afterwards the gravest, often does not cause, during eight or ten successive days, any occurrences save of the slightest importance, similar to those which our present patient experienced, the reader will allow that it was impossible to suspect the existence of any other disease than the typhoid affection. This fact, and the preceding one prove that the duration of this doubtful state does not affect in the least the reasonableness of our suspicions.

Moreover, ulcerations of the small intestine are not the sole ones which remained latent, for the ulcers of the *œsophagus* were so likewise, since deglutition was easy until the last periods of life. It is, likewise, not less remarkable that the symptoms of perforation were but slightly pronounced; that, at this period, the pulse, instead of being contracted as in the previous observation, preserved a certain fulness, and if this fact does not explain the absence of the characteristic symptoms of

the lesion of the patches of the ileum, it shows that the slight degree of sensibility of the mucous membranes was enjoyed by the serous ones. But to what shall we attribute the sudden and unexpected death of the patient?

FORTY-THIRD OBSERVATION.

Loathing of food; incomplete anorexia; chills at the commencement; continuation of the same symptoms afterwards; dejections, infrequent; rose-colored, lenticular spots on the twenty-second day; some pains in the hypogastrium; symptoms of *perforation* on the thirty-eighth; death on the *forty-fifth*. Elliptical patches of the ileum ulcerated; one of them perforated in the neighborhood of the cæcum; mesenteric glands, corresponding to them, a little red, enlarged and softened, &c.

A TAILOR, æt. 25, rather liable to colds, of rather narrow and thin frame, and who had had shortness of breath from the age of ten years, was admitted into the hospital of La Charité, May 31st, 1825. He had been at Paris nine months; said he had been ill twenty days; had left work eight days, but had not kept the bed. At the beginning, loathing of food, anorexia, thirst, cough, chills, followed by heat. These symptoms continued; the chills returned always when the patient was not exposed to the sun, or near the fire, and for nourishment he limited himself to coffee and chocolate, which were disagreeable to him. He had taken every day during the first week, a little of the tincture of rhubarb; there was, likewise, every day during the same space of time one liquid dejection; afterwards, the alvine evacuations became rare, and were entirely absent during the last week. There was a little uncomfortable feeling with a sensation of weight at the epigastrium, but no pain in the abdomen.

June 1st, face, natural; position, good; intellect, well de-

veloped; tongue, clean and moist at circumference, villous in the centre; great thirst; anorexia; slight oppression at the epigastrium; constipation; skin, a little more hot than usual, generally moist; pulse, large, moderately full, slightly irregular; cough, not frequent; some mucous sputa; respiratory murmur, natural; moderate degree of debility; no headache.

(Lemonade; cataplasm upon abdomen; emollient enema; strict diet.)

Nothing remarkable happened during the following days. On 4th, yellowish appearance of skin; face, less animated than usual; a little cephalalgia; some rose-colored, lenticular spots upon abdomen and chest; slight pains in the hypogastrium; dejections from enemata as on the previous days; pulse, tolerably large, at eighty-six.

From the 5th to 16th, the condition of our patient was nearly stationary; however, the anorexia was less complete and on the 9th two half rice fritters (*demi-cremes de riz*) were allowed. On 17th, for the first time the patient had some spontaneous liquid dejections, and already, for many days, the face had been more pale, the debility more marked than usual; but the character of the pulse, the pains in the hypogastrium, &c. had not changed perceptibly.

Nevertheless, on the morning of 18th, the patient experienced *suddenly* a very severe pain in the right testis and corresponding part of the hypogastrium. The pain almost immediately left the part it attacked first, and remained fixed in the hypogastrium, over which it extended entirely after some minutes and diminished rapidly, so that the sister of charity did not perceive that the patient suffered more than usual during the day. He had a little chill with tremor when the pain began.

On the following day it was considerably increased, and the exasperation commenced in the middle of the night.

The face was very much shrunken, covered with large drops of sweat ; neither nausea, nor vomiting, nor meteorism ; pulse, at a hundred and four.

(Opiated flaxseed tea enema, twice ; cataplasm to be sprinkled with laudanum.)

Six liquid dejections and frequent vomiting of bile of a green color in the morning ; the sweat continued during the day. The pains were more or less severe. On 20th, at the hour of visit, they were very severe ; the patient was unwilling that any one should touch his abdomen. His face did not bear the marks of anxiety, but the features had a kind of immobility about them, which was usually quite foreign to them ; the skin was moderately hot ; there was no cough.

(Acidulated and sweetened rice water ptisan ; fifty leeches to the hypogastrium ; emollient fomentations.)

There was considerable loss of blood ; the pains diminished but very slightly ; there was neither nausea, nor vomiting during the day. On the following day, the abdomen was rather tense and still very painful ; tongue, pale and almost perfectly clean ; pulse, at ninety-two.

(Thirty leeches to the hypogastrium.)

On 22d, face, nearly natural, pains much less severe than the day previous ; they were still less on the next day and day after, so that the condition of the patient seemed stationary, or to begin to be ameliorated, but they increased a little during the 24th, were very severe in the evening, at six o'clock, and continued very nearly in the same degree until the next day, without nausea or vomiting.

On 25th, the patient uttered from time to time deep groans ; his face was pale and covered with sweat, his mind perfectly clear, the abdomen of good form, very painful, the pulse ex-

tremely small and feeble, at two hundred. There was some vomiting of bile at a quarter past ten, and at one, P. M. the patient died.

Opening of the corpse forty-three hours after death.

EXTERIOR. — Considerable emaciation; abdomen, of a bluish color, as it was so, likewise, somewhat on the preceding day.

HEAD. — Slight effusion under the *arachnoid*; partial thickening of this membrane in two points, one inch from the falx; half a spoonful of clear serous fluid in each one of the lateral *ventricles*; *medullary* substance of the brain, moderately consistent, slightly injected with pale blood. Remainder of encephalon healthy.

NECK. — The *larynx*, *epiglottis*, *pharynx*, and *trachea* were white and natural.

CHEST. — *Heart*, pale and very soft; its parietes were thin; those of the left ventricle were three lines thick; those of the right a line and a quarter only. *Aorta*, healthy. The apex of the left *lung* presented some cellular adhesions; it was a little hard and uneven, and within two inches of the apex there was a great number of grey, semi-transparent granulations, in the midst of which there was a tuberculous cavity about the size of a nut, partly empty and communicating with the bronchia. These last were somewhat red at this point only, and for the space of an inch. Below, the pulmonary tissue was natural. Such was the case, likewise, with the right *lung*, of which the *bronchia* were perfectly healthy throughout their whole extent.

ABDOMEN. — There was a little less than a quart of turbid, greyish and greenish, very fætid fluid in the sides and small pelvis; in the lowest part of the latter it had the consistence of

laudable pus. The concave face of the diaphragm and a part of that of the liver were greyish and covered by false membranes, which were thin and of slight consistence; the the epiploon was reddish, and two lines thick at its circumference; it adhered to the left side of the superior strait, over a small extent, and covered the small intestine, the convolutions of which, slightly meteorised, occupied in a great measure the small pelvis, and adhered together by means of membranous concretions. I very slightly compressed the intestine in order to destroy these adhesions, and from the fluid which had been effused I saw large bubbles of air escape, by means of which I discovered the perforation, five inches from the cæcum. The *œsophagus* was healthy; the *stomach* was slightly distended with gases; its external surface presented nothing unusual, save some pieces of false membrane, and internally there was a small quantity of yellow, greenish, pultaceous substance. Its mucous membrane was of an analogous color, save along the great curvature, where it was greyish, Though a little softened near the pylorus, it had every where else the thickness and degree of consistence natural to it. The *small intestine* had on its external surface patches of a more or less deep red color, owing to an injection of the peritoneum; it contained a moderate quantity of pultaceous matter, similar to that in the stomach. Its mucous membrane had lost half of its consistence in the jejunum; it was soft as mucus in the ileum, a little thickened throughout its whole extent. Two feet from the cæcum there was a transverse ulceration covering a quarter of an inch of surface, opposite the mesentery, in which was seen the muscular coat thinned; the edges of the ulcer were but slightly prominent; it was two lines broad, of a slightly greyish tinge, not spotted with the blue grey color. Six similar ulcerations were found in the five inches nearest

the cæcum, and in the centre of the first of them there was a perforation three lines in diameter, the borders of which were very thin, and through a part of its circumference they were composed of peritoneum alone. The *mesenteric glands* were a little red and of three or four times their usual size, and were but half as consistent as in health. The *mucous membrane* of the large intestine was much softened in the first half; much less so in the second; it was slightly thickened throughout. Its submucous coat and that of the small intestine likewise were thickened. The *liver* was a little pale and soft; the *bile* in the gall-bladder, copious and clear, and of a deep red color; the *spleen* was of double its usual size; its texture was a little pale and slightly softened; the other *viscera* of the abdomen were natural.

In addition to the points of interest presented by the preceding observations, we have in this last one that which the disease presents when it continues a long time before causing death, for death did not take place until forty-five days after the commencement. As in the first two cases, the thirst, anorexia, pains in the head and chills indicated clearly the time at which the disease began; chills occurred several days in succession; the other symptoms continued a long time without others being added to them, and it was only after a period of three weeks, on the day following that of the admission of the patient into the hospital, that the pains in the bowels supervened; diarrhœa did not occur before the thirty-seventh day of the disease, on that preceding the perforation, and after death seven small ulcers with flattened edges were found in the small intestine near the cæcum; a marked softening of the mucous membrane of both intestines, softening, likewise,

though less in degree, of that of the stomach ; the heart, the liver, and the spleen had undergone analogous changes.

As the ulcers of the small intestine were the most severe, and, doubtless, the most ancient, to them alone, therefore, must be attributed the febrile symptoms which occurred in the commencement, the anorexia and thirst which were very nearly stationary during a month, and we can conceive how a lesion of such slight extent, so slow, perhaps, in developing itself, must correspond to very slight symptoms, and for a still greater reason, that the edges of the ulcers, or whatever remained of the ulcerated patches, should be very little thickened and pale ; so that the inflammatory stage had, doubtless, always been slight, and, as in the preceding case, had exercised but little influence upon the ulceration. There is another fact which supports us in this mode of viewing the subject, namely, the small effect produced by the tincture of rhubarb, which was administered ten days in succession.

What we have stated in relation to the preceding observation will suffice, moreover, to show how we could have arrived at a diagnosis in this case. But in addition, we have the fact that the subject of this observation, a long time before the perforation, had pains in the abdomen and rose-colored, lenticular spots ; so that the diagnosis must be more certain than that of the two previous ones.

FORTY-FOURTH OBSERVATION.

Chills; headache; anorexia; soon afterwards, pains in the abdomen; return of chills regularly during eight days; afterwards, very irregular diarrhœa; evacuation by dejection of a tumbler-full of blood on twentieth day; recurrence of the chills; increased debility; symptoms of perforation; death on the *thirty-sixth day*. Numerous ulcerations in the ileum; corresponding mesenteric glands, enlarged, and of a purplish hue; ulcerations of the mucous membrane of the stomach, &c.

A YOUNG man, æt. 28, engaged for ten months in working at agricultural employments in the country adjacent to Paris, was admitted, Dec. 20th, 1824, to the hospital of La Charité. He was rather tall, of a moderately strong constitution, had been generally in a good state of health, and said he had been ill three weeks. The affection had been preceded during a month by a slight cough, and had commenced by severe headache, an almost total loss of appetite, thirst, chills followed by heat and sweat. These symptoms had continued; the chills had returned regularly every day at the same hour during the first week, then had entirely disappeared; the dejections, after having been suppressed during eight days, had been rather frequent and liquid after Dec. 12th, and the patient declared that he passed a tumbler-full of blackish blood on the day preceding that on which he was admitted to the hospital. Colic pains had preceded the commencement of the diarrhœa. There was no pain at the epigastrium, nausea nor vomiting. The patient had been put on a rigid diet, taking only rice water during eight days; he had kept the bed and had experienced a little heat and uncomfortable sensations during fifteen. The cough had lessened somewhat.

Dec. 21st, face, natural; intellect, well developed, answered

rather slowly ; neither headache, nor pains in limbs ; tongue, natural at edges, of the color of coffee with milk in it in the centre ; almost complete anorexia ; very great thirst ; epigastrium a little painful at intervals during twenty-four hours ; one dejection during the evening ; pulse, at seventy-five ; cough, infrequent ; respiration, easy ; percussion of the chest very sonorous ; no kind of râle mixed with the respiratory murmur. The patient was calm, and experienced only a moderate degree of uncomfortable sensations.

(Sweetened rice water ; gum potion ; half a yolk of an egg with sugar and water, twice.)

Between four and eight, P. M., chills followed by heat, without sweat. The access returned on the next day, and the day after that, but a little sooner than previously, and eight grains of the sulphate of quinine were ordered at the visit of 24th.

On this day there was no chill. On 25th, the dejections which had been regular from the time of the admission of the patient into the hospital, became very frequent, about fifteen in number, and rice water acidulated with lemon juice was ordered ; the sulphate of quinine was for a time suspended, then renewed during two days, and definitely abandoned on 31st. There were only two alvine discharges on the two previous days, but the patient was, however, in a very weak condition.

Jan. 1st, there was some vomiting of bile, and from eight to ten very small liquid dejections. On 2d, the features were rather sunken ; speech, more slow ; the pulse, quicker than usual ; skin, moderately hot ; cough, not frequent ; the sputa of rare occurrence and of a mucous character. The patient suffered but slightly.

(White decoction ; a half-julep.)

Only three dejections during the day ; but during the night

of 3d to 4th the patient *suddenly* experienced a very severe pain in the hypogastrium ; this pain, which caused the patient to utter loud shrieks, continued about the same in degree during an hour, and diminished much afterward. On 4th, at the hour of visit, it was very slight, the abdomen was supple and it could be examined by the hand without trouble to the patient, who had, nevertheless, given until that time proofs of great sensibility to pain. His features were very much contracted ; his strength much diminished ; his tongue somewhat clammy, thirst greater than usual ; respiration, more frequent ; pulse, at a hundred and ten.

The patient was tolerably calm during the day ; on the morning of 5th, his face was animated, and, like all the rest of the body, covered with sweat ; his tongue was very moist ; thirst, moderate ; pains but slight ; no alvine evacuations on the preceding day.

This apparently calm state was only interrupted in the evening by some vomiting of bile. A little later, at half past ten, feeling very ill, and being persuaded that he had not many more hours to live, the patient bade adieu to his comrades, and at eleven he expired.

Opening of the corpse thirty-three hours after death.

EXTERIOR. — Abdomen, somewhat meteorised, greenish at its lower part ; no reddish stripes on skin.

HEAD. — Numerous opaque and large white granulations in the *arachnoid* near falx. The *cerebral* substance was firm and but little injected ; each one of the *lateral* ventricles contained a small spoonful of serous fluid ; the remainder was healthy.

NECK. — The *larynx*, *epiglottis*, *trachea*, and *pharynx* were natural.

CHEST. — The *lungs* were united to the pleuræ throughout nearly the whole extent of their surfaces by means of a cellular membrane, moderately dense ; and both, in the two upper inches, had considerable firmness, owing to the development of a great number of grey or whitish granulations, either isolated or agglomerated, forming masses of a greater or less size, in the middle of which there were some softened tubercles. There were, likewise, some granulations distributed through the rest of the upper lobe. The lower, though presenting scarcely any traces of congestion was very easily torn. The *heart* was small, its parietes firm ; the *aorta* was perfectly healthy.

ABDOMEN. — A reddish, turbid, fætid fluid of a peculiar odor was found in the sides and small pelvis ; a large glass-full of thick yellowish pus between the rectum and bladder. Thin, soft, false membranes upon the *liver*, in the iliac fossæ and upon a part of the small intestine ; the peritoneum upon which they adhered was of a bright red color in many points. *Œsophagus*, perfectly healthy. The *stomach* was large ; its mucous membrane yellow, thin, and of a moderate degree of consistence in the great cul-de-sac and posterior face ; it was of a rose color, mamelonated, and of a proper thickness and degree of firmness in other parts. It had in the mamelonated part a hundred minute ulcerations ; the membrane was completely destroyed in the corresponding point ; it was very friable, and could not be raised in strips near the pylorus for the space of an inch and a half. The *small intestine* was moderately distended with gases ; it was generally of a rose color, and in some points was of a very bright hue externally. Eight inches from the cæcum there was a hole, one line in diameter, partly closed by a yellowish pellicle, which was still adherent to its edges,

and there was a considerable quantity of bile in it. Its mucous membrane was a little softened in the neighborhood of the cæcum, but healthy in other parts. The *elliptical patches* of the last four feet of the ileum, twenty in number, were ulcerated, and some which preceded these were of a slight rose color, and swollen through a part of their extent. The ulcers were very irregular in shape, toothed (*dentelées*), as it were, their edges were of various degrees of thickness, formed by thickened mucous membrane, softened, of a very pale rose tint, and by submucous cellular membrane, not less thickened, a little infiltrated, but whitish. They were of unequal depths ; some of them arose from a destruction of the mucous membrane only ; the others from the destruction of this membrane and of the submucous cellular tissue, so that the muscular coat was left exposed, a little thickened and reddish. Finally, this last, in a circle of two lines in diameter, and the peritoneum over rather less space, were destroyed in the ulcer in which was situated the perforation. The *large intestine* contained a small quantity of fæcal matter, pultaceous, or in morsels ; its mucous membrane was pale, softened, and gave strips from one to two lines long in its first sixth, and afterwards it became gradually more consistent and recovered in its last quarter its natural firmness. The *mesenteric glands* were purplish, enlarged for the most part, especially near the cæcum, where many of them presented tuberculous masses of greater or less size. The *liver* was of moderate size, of a pale, uniform color. The *spleen* was nearly double its usual size, of a bright color, and nearly natural consistence. The other *viscera* were perfectly healthy.

If the symptoms, which this patient had, resembled in their trivial character those which have been described in the three

preceding observations, there were, likewise, some differences so peculiar that it will be well to take notice of them. The chills not only returned many times after the commencement, but during eight days in succession, at the same hour, after which they ceased spontaneously, to re-appear on the twenty-fifth day of the disease ; instead of being not painful, the abdomen was somewhat tender from the beginning ; diarrhœa came on soon afterwards, and though sometimes absent, it returned at various intervals, alternately being slight and severe ; the debility was, likewise, more marked than in the other cases of latent typhoid affection, so that, notwithstanding the absence of many of the most characteristic symptoms, we may say that the disease pursued very nearly its usual course. We must remark, likewise, that the day before that on which the patient was admitted into the hospital he voided by the rectum a tumbler of fluid blood, a symptom which is very rare during the course of any other acute disease than the typhoid affection, and which made M. Chomel suspect the disease in this case. But as other characteristic symptoms did not appear, he gave up the idea to which I likewise did not hold, so that, in fact, I did not recognise the disease until perforation took place. Until that moment the condition of the patient was a problem for me, and the solution seemed more difficult from the circumstance that he had a pulmonary complication, the nature of which was uncertain.

We must allow, however, that with more attention, and by discussing the symptoms in a more rigorous manner, I ought to have recognised the disease. Doubtless, it began to a certain degree, like a quotidian fever ; the chills returned regularly during eight days, but the appetite did not return during the intervals ; pains in the abdomen began soon after the commencement ; diarrhœa soon followed ; in fact, the disease pur-

sued neither the course usually pursued by intermittent fever nor that of enteritis. The symptoms, however, indicated an affection which had its seat in the abdomen, the persistence of the diarrhœa, interrupted afterwards at times only, the discharge of blood in the dejections, the diminution of the strength of the patient, the inefficiency of regimen in arresting the course of the disease, &c. ; all this ought, notwithstanding the slowness of the pulse, to have led me exclusively to the idea of the typhoid affection.

Moreover, if the symptoms were not exactly like those seen in the preceding observation, the patches of the small intestine and the circumference of the ulcers presented, likewise, some difference in their pale rose color. However, this difference was slight, and the condition of the patches in this case, as well as in the others, was in perfect harmony with the slight nature of the febrile action, and, doubtless, the patches were the only organs affected at the beginning of the disease ; at least, we cannot consider that the ulceration of the mucous membrane of the stomach commenced then, since the stomach did not, at that period, give any signs of inflammation.

If the symptoms which have just been studied are a little more significant than those of the previous observations, those which I shall proceed to detail are still more so, and form, to a certain extent, a natural link between the cases in which the disease pursued the most latent course, and those in which it showed itself with the most characteristic symptoms.*

* For remarks relative to the preceding Observation, see Appendix. —
H. I. B.

FORTY-FIFTH OBSERVATION.

Anorexia ; slight diarrhœa ; considerable debility at the beginning, less afterwards ; on sixteenth day pains at the epigastrium and in the left ear ; slight deafness ; afterwards, somnolency ; some vomiting, and finally great change of features on the twenty-third day, with pains in the hypogastrium, meteorism, and death on the *same day*. Ulcerations of the pharynx ; partial destruction of the epiglottis ; patches of the ileum, ulcerated, one of them perforated ; corresponding mesenteric glands, red, enlarged and softened, with purulent points in them.

A JOINER, of a frail constitution, of medium size, having never experienced any grave disease, was admitted into the hospital of La Charité, Nov. 10th [3d ?], 1823. He had arrived at Paris during the last week of August ; had been ill fifteen days, and had kept his bed almost constantly from that period.

At the commencement, in the middle of the day, anorexia, slight diarrhœa, with sensation of such great debility, that it was with difficulty only that the patient was able to get home. These symptoms continued ; but the debility diminished a little after the third day. However, no chills occurred, nor pains in the abdomen, nausea nor vomiting ; at times, there was a little increased heat of the skin and some sweat at night.

Nov. 4th, face, but little animated ; sleep, moderate and calm ; intellect, rather dull ; slight sensation of fatigue of limbs ; considerable debility, although the patient came to the hospital on foot, with the assistance of a friend's arm ; tongue, rather red at edges ; anorexia ; thirst, moderate ; abdomen, supple, not pained by pressure ; three liquid stools ; pulse, at eighty-four ; skin, moderately hot ; a little cough ; some semi-transparent sputa ; position of body, sufficiently good.

(Sweetened rice water; flaxseed enema; simple gum potion.)

In the evening, intense heat of the skin, and during the night slight pains in the epigastrium; intolerable piercing pains in the left ear; almost total deafness of this ear. On the next day same condition of the ear; pulse, a little quicker than on the previous day; skin, of natural temperature; tongue, a little red and dry in centre; cough, more annoying; sputa, more viscid, and having a slightly turbid aspect; two liquid dejections; considerable moisture of surface during the night.

During the night of 5th to 6th, copious sweat, accompanied by nausea and vomiting of bile. On the morning of 6th, same condition as on the preceding day, save that the pulse was a little quicker (one hundred), and it was, likewise, a little more contracted.

Rather severe colics during the night about the umbilicus. On 7th, these colics continued; the tongue was a little red at edges, moist and whitish in centre; thirst, not great; skin, quite hot; pulse, moderately accelerated; intense headache; features, natural; one liquid dejection.

(Twelve leeches to anus.)

The pains disappeared during the day, and re-appeared only on the morrow and the day after. Three dejections every day, and as the patient passed some lumbrici, and as he had passed some during eight successive days, one week before falling ill, an ounce of castor oil mixed with an equal quantity of tartaric syrup was ordered to be taken on the morning of the 9th.

This potion did not increase the number of the dejections, and did not produce the evacuation of any worms. On 10th, the pulse was at ninety; the face was less natural than usual;

it bore the impress of a kind of embarrassment and of uncomfortable feelings.

During the day, frequent drowsiness ; two dejections, one involuntary with some ascarides in them. In the middle of the night, considerable vomiting of bile ; the next day, continuance of the drowsiness ; face, but slightly changed ; extreme debility ; brief answers ; great thirst ; epigastrium, very sensible to pressure ; abdomen, well formed ; pulse, a little more accelerated than on the day previous ; respiration, rather high and frequent ; chest, sonorous on percussion in every part ; a little crepitous râle of large size at the right part of the back near the vertebral column.

(Two blisters to legs ; emollient fomentations to abdomen.)

A great change of feature was observed during the day, although the patient did not seem to suffer very much. On 12th, at the hour of visit, his face was pale, still more altered than before ; he complained of extreme debility ; did not say he had severe pains ; nevertheless, the hypogastric region was extremely sensible to pressure and somewhat meteorised. He seemed, moreover, to be very attentive to every thing which was passing around him.

This state of things did not alter sensibly during the day, and the patient died towards seven, P. M., without delirium or death rattle, and without any one's noticing the precise moment when patient drew his last breath.

Opening of the corpse thirty-seven hours after death.

EXTERIOR. — Skin, more dense and thicker in the parts corresponding to the blisters than elsewhere.

HEAD. — Very many minute drops of blood upon the surface of the *dura mater* ; many granulations upon the *arachnoid*, covering the cerebrum near the falx ; *pia mater*, very

much injected ; *cortical* substance of the cerebrum of a pale rose color, and containing many red points in it ; *medullary*, very much injected ; a small spoonful of serous fluid in each one of the lateral *ventricles* ; two spoonfuls of the same fluid in the lower occipital fossa. Cortical and medullary substances of the *cerebellum* in the same condition as those of the cerebrum.

NECK. — The *uvula* and *amygdalæ* presented no remarkable appearance ; on the right side of the *pharynx* there were six oval ulcers, from three to six lines in their greatest diameter, the deepest of which had laid bare the muscular coat, while in the others the submucous merely was seen. The corresponding edge of the *epiglottis* was entirely destroyed for about the space of a line ; the mucous membrane of the *trachea* was of a bright red color, especially at its lower part.

CHEST. — *Heart*, rather less firm than usual, otherwise healthy ; an amber-like concretion was in both ventricles. *Aorta*, filled with blackish and violet-colored blood, but its texture was of a perfect whiteness. *Lungs*, free from adhesion, not heavy, a little red anteriorly, bluish and heavy, and flaccid behind, in which part they contained almost no air, and on being compressed a small quantity of blackish, rather viscid blood, flowed out ; they were very nearly equally firm in every part. There was a little mucus in the *bronchia*, which were of a deep livid red color.

ABDOMEN. — Yellowish and dirty red liquid, turbid, not copious, very fætid in the small pelvis and the iliac fossæ. The *small intestine* was somewhat meteorised, and the convolutions united together by means of very thin, false membranes. Every part which could be seen of it was red, and this redness, which became very bright after the re-

removal of the false membranes, belonged to the peritoneum, which could be detached from the subjacent tissue without being broken. A slight pressure made upon the small intestine, caused some bubbles of air to issue, which, in passing from the effused fluid, showed where the perforation existed in the ileum, ten inches from the cæcum, in the centre of one of the patches which I shall shortly describe. The *stomach* was double its usual size; its mucous membrane was covered by a viscid mucus of a grey color mingled with red; it was mamelonnated throughout its whole extent, save along the small curvature and near the pylorus; it was very much thickened and softened along the great curve, and not less softened in the great cul-de-sac, in which it was impossible to raise any strips. The *small intestine* contained rather a large quantity of bile and mucous substance. Its lining membrane was healthy throughout the greater part of its length; it presented in its second half a considerable number of elliptical patches of greyish color, speckled with grey blue spots, such as usually are seen upon healthy patches. Two of them were ulcerated, and presented the submucous cellular coat corresponding to them, a little thickened and of a pale rose color. In the last three feet of the ileum there were thirty other patches of the same form, placed like the first, opposite the mesentery, from two to three lines thick, and more in some points, some of which had two inches and a half for their greatest diameter. The mucous membrane was more or less largely destroyed on their surfaces, and they were composed of a homogeneous matter, generally of the same consistence as that of the lymphatic glands slightly inflamed; it was yellowish or of a pale rose color, of a sufficiently firm texture in their centre, but more or less friable at their circumference, so that it could be

separated without difficulty in this part from the surrounding parts. This substance, which was more or less deeply furrowed, parallel to the small diameter of the patches, had invaded in many parts the muscular coat, from which it could be separated only with difficulty ; it was untouched in half of the patches, but more or less entirely destroyed in the others, and this destruction was complete on that one in which the perforation was found. This perforation was a line and a half in diameter, its edges were very thin, composed of the peritoneum and muscular coat, which were exposed for the space of a line. This coat was more or less thickened in the points corresponding to the other patches ; such was the case, likewise, with the cellular membrane at their circumference for the space of half an inch to an inch, while the mucous membrane was very much softened and a little thickened in the intervening spaces. The *mesenteric glands*, corresponding to the last third of the small intestine were enlarged, somewhat red and friable, and in the centre of some of them there was a little pus. The mucous membrane of the *large intestine* was of a rose color in some points, and generally a little softened and thickened. The *liver* was larger, more engorged with blood and more friable than natural ; the bile of the *gall-bladder* was ruddy, clear and rather abundant ; the *spleen* was nine inches long, five broad, three inches thick, bluish externally, bright red internally, and a little softened ; the other *viscera* of the abdomen were healthy.

We cannot date the period of the perforation back farther than the epoch when there was a great change in the features, that is, more than twenty-four hours before death, so that the symptoms which have been previously observed must be attributed to the other lesions. Although but little in propor-

tion to the condition of the small intestine, some of these symptoms were at the commencement, termination, or during the course of the disease, among the most characteristic which ever occur. At the commencement, there was a remarkable degree of debility which the diarrhœa could not explain; on the next day after the admission of the patient into the hospital, a very severe pain in the ear came on with some deafness; a little later, some drowsiness and an alteration of features. If, at this last period, the character of the disease was not doubtful, its nature must have been suspected shortly after the commencement, for if the diarrhœa did not account for the debility which then occurred, it indicated the seat of the affection, and as this did not seem to be a proper enteritis, we must have supposed the existence of the typhoid affection; for a still greater reason that it was impossible, at this epoch, to attribute the debility to a disease of the mucous membrane of the stomach, the symptoms of which did not come on until a much later period.

The hard or soft patches of the ileum were, moreover, very remarkable; the soft patches, inasmuch as the cellular membrane, which enters into their composition, was more altered than the membrane covering it, which fact seems to show, as I have already stated, that the alteration of this cellular membrane is, perhaps, primitive in some cases; the hard patches, inasmuch as the cellular membrane surrounding them was very much thickened for the space of a half inch or an inch, which thickening we cannot regard but as consequent upon the more serious alteration of that which helps to form the patches.

Whatever has been said of the value of the first symptoms, the preceding fact must be considered as a remarkable example of the latent condition which we are treating of, and the

ulcerations of the small intestine had not alone this character, those of the pharynx and the partial destruction of the epiglottis not having given rise to any symptom capable of revealing their existence.

Excepting one fact, which is somewhat analogous to the five observations just detailed, these are the only ones of this kind which I have collected, and although the reflections made in relation to each leave me but little to say about them as they appear when compared together ; still, it will not be entirely useless to review rapidly the first three, which are quite similar to one another in the slightness of their symptoms as well as in the character of their lesions.

In relation to the symptoms, the patients experienced, from the beginning, chills, headache, more or less intense thirst, diminution more or less considerable of appetite ; the chills returned irregularly a certain number of times ; the heat of the skin and thirst were very moderate ; the diminution or loss of appetite continued in the same degree ; there was considerable debility until the moment when perforation occurred ; neither pains in the abdomen nor diarrhœa through the whole, or nearly the whole duration of the disease. On the contrary, the dejections were very rare, so that no symptom indicated directly either the nature or the seat of the affection, and we could not have arrived at any correct diagnosis, except by excluding the idea of the existence of other diseases, and thus arriving at the diagnosis of the case in question (*voie d'exclusion*). Nothing could have led us to suspect disease either of the encephalon or of the chest, and among the affections of the abdomen, we could not, as I have already stated, have supposed the existence of a mere gastric embarrassment, or intestinal disturbance, nor of a gas-

tritis, of which there was no characteristic symptom, nor a disease of the liver or kidneys, nor enteritis, properly so called ; this could not be expected to exist when the dejections were neither numerous or liquid, and when there were no pains in the abdomen. And as the subjects which now engage our attention were, by their age and the circumstances in which they were placed, of the number of those most exposed to the typhoid affection, we arrive thus by the argument of exclusion at the diagnosis of the disease.

I do not pretend, however, that it was possible to affirm positively that the disease existed in these cases. Such a degree of certainty in the argument of exclusion, would suppose a perfection in pathology which it is far from having, and, also, that a latent state of acute disease occurs only in subjects attacked with the typhoid affection ; which is not the fact. What I merely wish to say is, that our suspicions ought to be directed towards this last disease. But supposing, in addition to the above-mentioned symptoms, some rose-colored, lenticular spots appear, an evacuation of blood in the dejections, deafness or marked debility from the commencement, as in the last two observations, then the diagnosis becomes much more certain, and one could, independently of extreme prostration, meteorism, or cerebral symptoms, declare the existence of the typhoid affection. The examination of the surface of the body is of great importance in doubtful cases. It would not be less useful to examine carefully the region of the spleen, and if it could not be felt through the parietes of the abdomen, it would be well to percuss carefully the chest, because an increase in the size of the spleen takes place, as we have seen, in nearly all the cases in which the elliptical patches of Peyer are altered.

One fact, which proves that we run very little risk of mak-

ing an error in our diagnosis, in drawing conclusions from the facts above given is this, viz. that in a considerable number of cases, in which the symptoms of the typhoid affection were very fully marked at a somewhat late period of the affection, they were not, for one or several weeks, any more severe or more characteristic than in these subjects; so that the most marked difference between the two classes of the same affection, is, that in one the negative characters of the disease continue long and remain very nearly in the same state throughout the whole course of the affection, whilst in the others they give place to the gravest and most characteristic symptoms of the disease.

The mildness of the symptoms is the more readily explained in these cases from the fact that, in two of the cases the number of diseased patches was small; and in all three of them their pale color, which could be attributed only to a retrograde course of the affection, indicated, as I have previously stated, that inflammation had but the smallest share in the production of their changes, of ulceration in particular. Admitting that the antiphlogistic treatment is generally appropriate to the typhoid affection, of what use would it be in the cases similar to that of which we are now speaking?

If these conclusions are rigorous we have in them a new proof that in the descriptions we may make of lesions, we should neglect no detail, since it would not have been sufficient to have limited ourselves to the statement of the number and size of the ulcerations.

Moreover, the facts previously given would be of little value if we should see in them merely the proof of the difficulty of diagnosis and of the means of arriving at it in certain cases. Their great importance, as it seems to me, consists in this, that they ought to excite doubts in our minds, as already

stated, in relation to all febrile affections without a determinate seat, and which are called *general*, and thus put us in the way of proposing problems which it is of great importance for us to solve. What in truth is more like the slight form of continued fever than either of the three observations which we are now studying? And on the supposition that the termination of the disease had been favorable, if the ulcers had cicatrized instead of increasing in depth, what physician would have said that the patient had experienced an attack of the typhoid affection, and that in these cases the elliptical patches of the small intestine had undergone some morbid change? I do not wish to draw the conclusion from this fact that all febrile affections of which the seat is yet undetermined, and which attack young persons, those who are in the most favorable circumstances for the development of the typhoid affection, are really nothing else than this affection; we are not striving to make bold, but rigorous conclusions, and these can only be obtained from a mass of facts greater than those I have collected in reference to the subject in question. I wish that my remarks may tend merely to fix the attention of physicians upon a series of facts which it is very important to elucidate.

The number of these febrile affections without any determinate seat or local lesion is becoming every day more limited, and a fact which has been usually placed with affections of this nature is classed elsewhere, if we pay sufficient attention to it; at least, this is the result to which I have arrived. Under the title of simple fever I had ranged twenty-four observations which I had collected, but on examining them carefully only six remained which I could not place under a different title. Were these cases of the typhoid affection? The others were evidently either an enteritis, properly so

called, or slight pulmonary catarrh, accompanied by a little febrile action, or angina, in which the local symptoms had been preceded by the general for twenty-four hours.*

I shall now pass to a series of facts which are different, and, to a certain extent, entirely opposed to those of which I have just detailed the history. There will be a still greater disproportion between the lesions and symptoms observed, but whilst the latter were very slight in the preceding observations, they will be more violent in the subjects of whom we are about to treat, while the change of the patches, on the contrary, will be slight, so that at first sight it may be asked if the cases are some of the same disease.

* In my Memoir upon Sudden Death, I have given the history of a patient who had three small ulcerations in the small intestine, (Memoirs, page 472,) on which observation I remarked that if any conclusion could be drawn from an isolated fact, we should be induced to believe that mild cases of continued fever are generally accompanied by some ulceration of the small intestine and inflammation of the mesenteric glands. — **LOUIS.**

CHAPTER IV.

CASES OF THE TYPHOID AFFECTION IN WHICH THE ANATOMICAL CHARACTERS MAY, AT FIRST, SEEM DOUBTFUL.

FORTY-SIXTH OBSERVATION.

Chills ; heat ; anorexia ; intense headache ; soon, delirium ; loud cries ; somnolency ; afterwards, tetanic rigidity of the muscles ; pains in the abdomen on the fourth day ; meteorism afterwards ; slight diarrhoea ; death on *nineteenth day*. Purulent effusion about the pharynx ; some patches of the ileum ulcerated ; mesenteric glands, enlarged, red and softened.

A FEMALE, attendant upon children, æt. 18, who had never had the menses, and had been at Paris nearly twenty months, was admitted to the hospital of La Charité, Feb. 3d, 1825, and declared that she had been ill seven days. At the commencement, headache, giddiness, pains in the limbs, chills and tremors, followed soon by heat, thirst, anorexia, nausea. The giddiness and nausea ceased on the third day ; pains in the abdomen came on afterwards ; the skin was hotter than natural, but the chills did not return. There had been no dejections, save by means of enemata, and during the first three days in March the patient had delirium during the night. She was put upon a strict diet and leeches were applied, on the day before entrance, to the left temple, that side being the most painful.

On 4th, face, purplish ; motions, difficult ; patient was able to lie in any position ; headache ; memory, sure ; answers,

just and prompt; no giddiness; great thirst; anorexia; abdomen, meteorised, painful, especially above the umbilicus; constipation; pulse, regular, rather small, at ninety-two; skin, moderately hot; respiration, infrequent, sometimes sighing; dry, sonorous râle on right side; from time to time patient uttered cries or was constantly muttering to herself. This disposition to talk could be restrained only momentarily by menaces, and it disturbed the rest of several other patients during the night.

(Venesection to $\frac{3}{4}$ viij.; tamarind whey; lemonade, twice; fomentations upon abdomen; emollient enema.)

The night was restless. On 5th, answers, rather less promptly given than before; slight prostration of strength; features, natural; tongue, moist, not red; continuance of pains in the abdomen; frequent sighing; one rose-colored, lenticular spot upon abdomen. Blood, neither buffed nor cupped; coagulum covered by a little serous fluid.

(Blisters to legs.)

The patient had intense headache; the condition of the intellectual faculties was pretty good; the delirium very noisy, more so than usual, during the night. On 6th, face, rather purplish; prostration; one hand rested upon the head as in very severe headache; constant cries, which did not cease until some time after the visit, when they ceased apparently from exhaustion of patient; many rose-colored, lenticular spots upon the abdomen; other symptoms as on previous day.

(Lemonade; infusion of cinchona; aromatic fomentations; enema of camphorated camomile tea; blister to the back of the neck.)

Some involuntary dejections during the day; a little less delirium during the night. On 7th, face, pale as after a great

loss of blood ; speech, almost unintelligible ; patient enjoyed in part her reason ; she blushed and was opposed to having her abdomen examined, which was of a perfectly good shape ; her tongue was dry and frequently protruded with difficulty ; she drank only about a third part of the bitter infusion ; respiration and circulation as usual.

(Frictions with aromatic wine ; potion with peppermint water \mathfrak{z} ij., orange-flower water \mathfrak{z} ij. and sulphate of quinine grs. xx.)

Until 15th, the day on which death took place, the symptoms became gradually more severe ; delirium and drowsiness were constant ; patient did not cease from uttering loud cries, during the nights from 7th to 12th ; for a very short time only was she a little calm on 9th, whilst in a bath ; there was great stiffness of the neck and left arm on 11th ; the upper and lower extremities were so, very nearly all the time from 12th to 15th ; the tongue, usually dry, was yellow and moist on 10th ; two or three involuntary dejections during the day. The pulse was rather large, and at a hundred on 8th ; it became more quick afterwards ; and on 12th, an excoriation of the sacrum was observed.

On morning of 15th, the head was inclined to the left side ; there was a general tetanic rigidity, which continued until death, at nine, P. M.

The baths, which were administered on 8th and 9th, having produced only a momentary relief, were not continued.

Opening of the corpse thirty-five hours after death.

EXTERIOR. — Considerable emaciation ; extreme rigidity of the left arm, which was in a flexed position ; almost complete destruction of the skin in the part where the blisters had

been applied, and on the sacrum for the space of three lines only. Muscles, not sticky, of a good color.

HEAD. — Some granulations at the posterior part of the *arachnoid*, near the *falx*; no effusion under this membrane; a small spoonful of serous fluid in each one of the lateral *ventricles*; none in the lower occipital fossæ. *Cerebrum* and *cerebellum*, perfectly healthy, not injected.

SPINE. — A spoonful and a half of serous fluid at the bottom part of the spinal canal; *spinal marrow*, in a natural condition throughout its whole length.

NECK. — The cellular membrane surrounding the *pharynx*, save a small portion of the right side of it, was infiltrated with pus, and this infiltration, which was dry, as it were, extended into the upper part of the anterior mediastinum, where there was seen nothing more than a turbid, serous fluid. The muscles of the pharynx, on the contrary, were infiltrated on the right side only, where they were from a line and a half to two lines thick. The *epiglottis*, *larynx* and *trachea* were natural.

CHEST. — A fibrinous clot somewhat infiltrated in the ventricles of the *heart*. Its parietes and the *aorta* were perfectly healthy; no effusion into the *pleuræ*; left *lung*, natural, save that it presented some traces of congestion; partial cellular adhesions between the pleura and right *lung*, which was splenified, brownish, firm in texture and heavy at the posterior part, where it contained but very little fluid, which could be pressed out only with difficulty.

ABDOMEN. — *Œsophagus*, healthy. *Stomach*, small; its mucous membrane was greyish and spotted red almost uniformly, save along the small curvature, for the space of an inch and a half; it was mamelonated along the large curvature, over a space three times as large; of natural consistence

and thickness throughout its whole extent, except in the great cul-de-sac, where this consistence seemed increased. The *small intestine* contained a moderate quantity of mucus. Its lining membrane was whitish and greyish in some points only ; it was of its usual consistence and thickness, save for a space of two feet in length in two parts where the cellular membrane was infiltrated. In its last fifth there was rather a large number of elliptical patches, only a little thicker than natural, covered with grey points, without redness, and presenting some small ulcerations, either solitary or clustered together, about three or four on each patch, where the muscular coat was exposed. The first of these patches which, contrary to what usually happens, was the largest, was three inches long, and had upon it the largest ulceration (five lines in diameter), and the borders of this last were separated from the subjacent parts for the space of a line. The rectum [*large intestine ?*] contained a small quantity of pultaceous, fæcal matter ; its mucous membrane was a little red and softened about the rectum ; it was of a natural color and consistence throughout the rest of its extent, except in the cæcum, where the membrane broke rather easily. The *mesenteric glands* were very red, very much softened, about the size of filberts, and in those near the cæcum there was a great number of yellowish points. The *liver* was healthy ; the bile was of a reddish hue and very fluid, not copious ; the *spleen* had twice its usual size, and was of a good consistence ; the cortical substance of the *kidneys* was redder than usual.

The disproportion existing between the symptoms and lesions was certainly considerable, and an exact knowledge of a great number of facts is the only means by which we may be able to range this in its proper place. At the commence-

ment, the patient experienced a febrile action which was very marked; intense headache; on the fourth day came on pains in the abdomen and delirium during the night. These symptoms continued; on the eighth day, delirium and somnolency became very marked; patient uttered loud cries; she had extreme restlessness during the night, and soon a tetanic rigidity supervened upon the first mentioned symptoms; the meteorism and diarrhœa were slight, and occurred only during the second half of the affection, and at the autopsy we found as the only lesions, or nearly so, an infiltration of pus below the pharynx, together with some small ulcerations upon the elliptical patches of the ileum, a slight softening of the mucous membrane of the rectum, and traces of rather violent inflammation of the mesenteric glands. That is to say, on one hand, many of the most severe and characteristic symptoms occurred, and on the other, very slight lesions of the elliptical patches of the ileum.

Nevertheless, of the two principal alterations, the infiltration of pus about the pharynx and the ulcerations of the small intestine, the former was the most recent, and its latent state sufficiently proves that it commenced during the delirium. But the ulcerations of the small intestine were more deep, and had laid bare the muscular coat; the edges of one of them were separated from the subjacent parts; the first symptoms experienced by the patient were those of the typhoid affection, as seen in those cases in which the relation existing between the symptoms and the lesions of the elliptical patches of the ileum is evident; pains in the abdomen occurred on the fourth day of the disease, so that every thing indicates that this alteration commenced with the first symptoms. And as the cerebral symptoms could not be attributed to any other cause, we must regard them as one of the

consequences of it, as in the other cases of the typhoid affection.

It will be said, that doubtless the disease pursued the course you have mentioned, but the disproportion between the symptoms and lesions is not explained. When any one can tell me why very severe lesions give rise to only very slight symptoms, then I will answer the inverse question, which may be made in many affections very different from this which we are now studying. Until such a time I shall limit myself to the statement of facts, endeavoring, nevertheless, to place them in their proper places. It is, moreover, worthy of remark, that, notwithstanding the smallness of the ulcerations and the slight increase in dimensions of the patches, still the mesenteric glands, corresponding to them, were as red, enlarged and softened as in those cases in which the ulcerations are very large, and the inflammation of the elliptical patches very marked.

As to the causes of death, if we find them partly in the inflammation of the cellular membrane about the pharynx, it is well particularly to seek for them in the derangement of the cerebral functions for the reasons given above, (page 145).

FORTY-SEVENTH OBSERVATION.

Delirium ; spasmodic symptoms during nearly the whole continuance of the disease ; diarrhœa on the fourth day ; discharge of blood on twenty-sixth and twenty-seventh ; meteorism ; sudamina ; death on the *fiftieth day*. Ulcerations in both intestines ; total destruction of the skin in the parts corresponding to the blisters ; mesenteric glands, bluish and enlarged.

AN unmarried female, æt. 15, thin, of a frail constitution, rather tall frame, was brought to the hospital of La Charité, July 6th, 1823, having been ill eight days. Until five years of age she had been very much subject to convulsions, and from that time she had undergone several severe affections ; she had been seventeen months at Paris, during which time she had received rather harsh treatment. Although she had continued to eat and work as usual during the fifteen days which preceded the commencement of the febrile action, still during that time she had, at intervals, some spasmodic movements in the arms. At the beginning, after having been severely reprimanded by her father, chills, convulsive movements of the right side of the body, delirium during the night. These symptoms, with remissions or intermissions more or less considerable, continued ; the skin was quite hot ; the thirst great ; diarrhœa occurred on the fourth day, and on the night of sixth to seventh the patient was very restless.

On 7th, face, pale, bearing alternately the aspect of one suffering, annoyed, or absorbed in thought ; subsultus tendinum ; various motions of the head from right to left ; patient did not know where she was ; seemed to try to find out during some minutes and then gave up the attempt. She spoke quite often of her father and of her mistress. As she made no

answer to questions relative to her degree of thirst, we attempted to make her drink ; a cup was brought near her lips and a little of the ptisan was poured into her mouth without opposition from her, but she made no effort at deglutition, and the fluid flowed out again ; her tongue was natural ; her abdomen slightly meteorised, sensible to pressure ; urine, frequent ; respiration, unequal, sighing, not accelerated ; skin, moderately hot ; pulse, at a hundred and sixteen.

(Emulsion ; flaxseed enema, twice ; bath ; sinapisms to the lower extremities.)

Two dejections during the day and much restlessness during the night. On 8th, spasmodic movements, and mind of patient in the same condition as previously ; her father was near her, and with difficulty only could he obtain some monosyllables in answer to his questions ; her tongue had a slight ulceration on its left side, but otherwise it was natural ; patient tried in vain to drink, said that she was prevented from so doing by pain in throat ; the amygdalæ and pharynx were natural ; the abdomen somewhat painful ; the pulse a hundred and thirteen ; skin, burning hot.

(Enema of camomile with asafœtida grs. xxx. ; gum potion with musk grs. x.)

The delirium, with movements of the right wrist, continued day and night ; the attendants were even obliged to keep the patient in bed by means of a cloth passed across it and fastened to both sides. On 9th, the face was alternately pale and red ; the delirium continued ; the patient, who had talked much about religion on the preceding day, spoke of it again, and asked if she had not committed some crime ; sometimes she sat up in bed without evident reason for doing so. Two dejections after enemata.

(Same prescription; bath twice.)

The delirium remained the same during the whole day; on the next the face presented the appearance of most profound prostration and sadness; her eyes had sometimes a tender expression; the sighs were frequent; there was no other change.

From this time until the day after the patient's death, August 14th, for the space of a month, the following circumstances occurred.

The delirium continued, save on the 16th and 17th of July, often accompanied by cries at night during the last twenty days. When interrogated in relation to her condition the patient said generally that she suffered a little less than on the preceding day, and after having given some answers, she asked, if the interrogatory was continued, for time to remember; she seemed, as at the period of her arrival at the hospital, to seek for an answer, but soon ceased to think about it. She had convulsive movements with loss of consciousness during the night of 14th to 15th of July; she already had had some on 10th, while in a bath, at the moment when one of her relations left her. Her face bore always the marks of profound sadness; her features were sunken on August 9th; the spasmodic movements of the right wrist did not continue beyond July 12th; the arm of the same side was stiff on 13th and 14th; was for a short time paralyzed on 17th, and from 19th to 27th, the left arm was almost always spasmodically contracted. From 19th there was a discharge of pus from the left ear, which continued until the last days of life.

The tongue was constantly moist, natural at its circumference, rarely yellowish in its centre, and the patient experienced a kind of salivation from July 18th to August 2d. She had a very slight degree of thirst; deglutition was rarely difficult; the

epigastrium and the remainder of the abdomen were sensible to pressure from the 12th to the 22d of July ; colic pains occurred from 18th to 22d ; four pultaceous dejections of a chocolate color on this last day, and five on the next day, almost entirely composed of coagula of blood, which were valued at more than ten ounces. There was slight diarrhœa afterwards, and at times frequent dejections. There was very great alteration of the features from 22d to 27th.

Though ordinarily small and feeble the pulse, was always regular, from a hundred and ten to a hundred and twenty-four, from July 14th to August 6th. On July 27th I observed a great many sudamina on the trunk and limbs ; there was no cough at any period, and the respiration ceased soon to be sighing.

Baths were ordered until July 19th ; four leeches to vulva on 12th ; on 16th, one ounce of castor oil, from fear that some of the spasmodic movements might be caused by worms, and this purgative procured four evacuations without worms. The half-enemata of flaxseed tea and the demulcent drinks were continued ; a little weak beef tea was given after the twenty-fifth, and during the last ten days a solution of gum syrup with a fifth or a fourth part of wine. A blister was applied July 22d ; the asafoetida was continued only until the 11th.

Opening of the corpse twenty-two hours after death.

EXTERIOR. — Last stage of marasmus. Destruction of the skin upon which the blister had been applied on the thigh ; considerable diminution of thickness of that of the opposite thigh in the corresponding part.

HEAD. — Injection of the *pia mater* on the right side of the upper part of the brain ; slight partial effusion under the

arachnoid ; a small spoonful of serous fluid in each one of the lateral *ventricles* ; cerebral *substance* a little firmer than usual, especially on the right side. The *cerebellum* and *annular protuberance* were proportionably as firm as the brain.

NECK. — The *larynx*, *epiglottis*, *pharynx* and *trachea* were perfectly healthy.

CHEST. — The parietes of the left ventricle of the *heart* were at least half an inch thick, but otherwise were more natural. The *aorta* was white and contained a small quantity of blood. The *lungs* were free from adhesions, light without the least congestion, of a rose color externally and internally ; divided into lobules of a pyramidal shape, the apices of which were turned inwardly, and the bases outwardly. The latter were about an inch large, and separated from the adjacent bases by an emphysema about half a line broad, which diminished towards the apices, where it was entirely wanting.

ABDOMEN. — *Œsophagus*, healthy. *Stomach*, slightly distended with gases. Its mucous membrane was generally greyish, wrinkled and uneven, without being mamelonated, of a proper thickness and consistence. The *small intestine* contained a small quantity of clear yellow fluid in its first half ; it was turbid and brownish in the second ; in its last two thirds there was a great number of elliptical patches, which had more grey points in them according to their proximity to the *cæcum*, near which five had a deep grey-blue color, and were ulcerated in many points. The ulcerations, about two lines in diameter, laid bare the muscular coat, and their edges more or less raised in some parts, were depressed in others, which showed that a tendency to cicatrization had begun. The mucous membrane of the *ileum* was softened throughout its whole extent. The *large intestine* was of moderate size and

of a grey color internally, which grew less gradually from the cæcum to the anus. Transverse ulcerations from half an inch to an inch large were found in the cæcum; the mucous membrane was a little prominent at their circumference, and a thin lamina of the cellular membrane was at their bottom. Others, much smaller, were found in the right colon, and in the sigmoid flexure of the left; there were, likewise, two in the rectum, two inches from the anus, from four to five lines in diameter. The mucous membrane was softened throughout the whole length of the organ, and had the consistence of mucus merely in its second half; it was of a bright red color in the rectum, white in other parts and greyish about the ulcerations for the space of from two to three lines. The *mesenteric glands* had a bluish color, and were at least three times as large as natural. The *mesocolic glands* had an analogous color, and were about as large as a medium sized pea. The *liver* was of a fawn-rose color, otherwise healthy; the *gall-bladder* projected two inches beyond it, and contained a large quantity of moderately thick bile, greenish and turbid. The *spleen* was in a natural condition. The body of the *uterus* was an inch broad and three quarters of an inch long. The other *viscera* were healthy.

If the nervous symptoms were very well marked, and the alteration of the elliptical patches of the ileum slight in the preceding observation, such was, likewise, the fact in the present case, in which, in truth, the nervous symptoms were so far superior to all others as to mask them, as it were, so that at the first glance it was impossible to distinguish them clearly, or one might ask if they arose from the same cause as in other cases of the typhoid affection; and all these questions it will

be easy to answer in the affirmative if we examine the facts relating to them.

After having experienced during fifteen days some spasmodic movements without any other appreciable alteration of function, the patient is taken with chills, delirium, and the spasmodic movements become more marked. The delirium, the form and object of which presented some varieties, lasted almost uninterruptedly until death, or during fifty days, generally calm, sometimes accompanied by cries; the spasmodic movements of the right side, which commenced with it, accompanied it; afterwards, some were observed in the left side; on the fourth day of the disease diarrhœa came on; on eighth the abdomen became painful and meteorised; on the twenty-sixth and twenty-seventh the dejections became brown, of a chocolate color, or composed of clots of blood; numerous sudamina came on about the same time; and at the autopsy the skin, corresponding to one of the blisters, was found entirely destroyed; the cerebral substance a little firmer than usual, especially at the right side; many elliptical patches of the ileum of a bluish-grey color, ulcerated, and the edges of the ulcers in many places depressed; the mucous membrane of the small intestine softened over a considerable extent, that of the large intestine throughout its whole length, and containing many ulcerations.

Thus, the most characteristic symptoms of the typhoid affection, the meteorism, the brown dejections, or composed of clots of blood, the sudamina, the destruction of the skin in the parts corresponding to the blisters, occurred; it remains to be proved that they were accompanied with the same alterations as in the most common cases.

The gravest lesions, the only ones which can be easily appreciated being those of the alimentary canal, to these

alone must be attributed the symptoms which have been referred to, and as the alterations of the ileum were the most ancient, we must refer the first symptoms to the small intestine. They were the most ancient, at least according to all appearances, for the last elliptical patches of the ileum were greyish and bluish, not but a little thickened, and presented the character of those which, having been more or less severely inflamed at a certain period, have retrograded during a certain time towards a natural, healthy condition, which showed still more clearly the tendency of the ulcers to cicatrization ; and nothing similar could be deduced from the lesions of the large intestine.

These considerations demonstrate, moreover, that the disproportion between the symptoms and lesions was much less, in fact, than what at first sight it seemed to be, since these lesions, those of the elliptical patches and the mesenteric glands, had been of a much graver character at one epoch of the disease than at the time the patient died.

It may be asked if the cerebral symptoms did not have in this case a special cause, if they were not owing to the irregularity of consistence of the cephalic mass. The affirmative of this question it would be difficult to sustain, for if the spasms or convulsive movements had been the consequence of this inequality of consistence, they would have occurred on the side opposite to that in which the consistence was most marked, which was not the fact, at least at the earlier periods of the disease. Moreover, these symptoms did not differ essentially from those which occur in other cases, and especially in the preceding observation, in which the inequality of consistence, of which we are now speaking, was not found ; we are ignorant as yet of the symptomatic expression of a like lesion, and therefore, if we assign to it any series of

symptoms, we should draw a conclusion, as it seems to me, in a case in which we ought to have doubts merely.

In conclusion, the affection of this patient took on in the highest degree the *ataxic form*; the lesions observed in the ileum were the same as in the most common cases of the typhoid affection, and in those the most distinct from that form, therefore, this observation is a new proof that the disease called ataxic fever does not essentially differ from other diseases of the same class, putrid fever particularly.

Another question, it is probable, may be asked. Some spasmodic symptoms occurred before the commencement of the fever; to what cause were they owing? Supposing that these spasms, of which I gained my knowledge from the relations of the patient only, did really occur, they might be attributed to the alteration of the elliptical patches of the ileum, which had been latent for a certain time. We must not, moreover, forget that as the patient was of a very lively sensibility, we ought not to attach to certain spasmodic symptoms so much importance as under any other circumstances.

Let us now pass to another observation, which is not less interesting than the preceding.

FORTY-EIGHTH OBSERVATION.

Cephalalgia, universal uncomfortable feelings; repeated chills after meals during eight days; diarrhœa on the third; afterwards complete anorexia; intense heat of skin, and soon afterwards meteorism; drowsiness; death on the *thirty-ninth day*. Elliptical patches of the ilcum, somewhat thickened, of a deep blue color near the cœcum; corresponding mesenteric glands, bluish and enlarged; eschars upon the sacrum; partial hepatization of one of the lungs, &c.

A TAILOR, æt. 21, who had been at Paris seventeen months, who was not very fleshy, with a soft skin and ordinarily in health, had been ill fifteen days and confined to the bed four days, when he was admitted to the hospital of La Charité, Dec. 30th, 1822. During the first week, sensation of universal uncomfortable feeling; cephalalgia; pains in the limbs; incomplete anorexia; repeated chills after meals; a little cough; diarrhœa on the third day; then exasperation of nearly all the symptoms; progressive diminution of strength; skin, intensely hot and dry; very severe headache; sleeplessness; frequent dreams; almost complete anorexia.

On 31st, after a calm night without dreams, slight cephalalgia, face natural; tongue, not very moist, of a moderate red color at its circumference; intense thirst; dryness of throat; deglutition, a little difficult since the preceding day; abdomen, supple, not painful, not meteorised; four liquid dejections; pulse, slightly accelerated, neither large nor full; skin, hotter than natural; rose-colored, lenticular spots in great numbers on the chest and abdomen, without evident prominence, more numerous still on the arms, where many were confluent and formed small patches of a bright red color; the respi-

ration was but slightly accelerated; no cough; motions, easy; no complaint.

(Lemonade; flaxseed tea enema; three cups of beef tea.)

On next day, Jan. 1st, slight stupor; tendency to sleep; abdomen, a little painful at the right of umbilicus; pulse, very much accelerated; great heat of skin; rose spots still more numerous than previously; a little cough; two sputa, of a mahogany color; slight dry râle heard every where over chest, which was sonorous on percussion.

(Venesection $\frac{3}{4}$ x.; blisters to thighs.)

Four dejections; nothing else remarkable during the day. On 2d, mind, tolerably clear; tongue, as on the first day; new eruption of spots; some mucous sputa.

(Lemonade, four times; gum potion.)

On 3d, prostration of features; general uneasiness; somnolency, into which patient fell as soon as we ceased to question him; eyes, rose colored, not painful; spots rather less numerous; pulse, active, at a hundred; dry, sonorous râle heard generally over chest; tongue, dry, rather tremulous.

No appreciable change on 4th. On 5th, stupor; face, colorless; deafness for the first time; answers, slow and incomplete; tongue, dry and brownish; great thirst; abdomen, soft and not painful; one dejection; pulse, regular, rather small, at a hundred; lenticular spots more or less prominent, and as much clustered together on the arms as on the trunk; respiration, rather accelerated.

(Lemonade; infusion of cinchona; potion with syrup of cinchona $\frac{3}{4}$ i.; a glass of wine; aromatic fomentations.)

From 6th to 14th, the face was generally pale; the hearing was almost always very good; somnolency and stupor moderate; there was no delirium and the debility, although considerable, did not hinder the patient from getting out of

bed. The tongue, though habitually dry, was sometimes moist, clammy and thickly coated; the abdomen, slightly meteorised, not painful; the dejections, infrequent, except from 10th to 13th, during which time they occurred from eight to twelve times during the day. The pulse preserved the characters already indicated until 14th, when it became small and frequent. On the same day, in addition to the dry, sonorous râle, there was a little crepitation on the right side of the chest. The prescription of 5th was continued; only some blisters were ordered for the thighs on 7th, those on the legs being nearly dry.

15th. Somnolency rather less; apparent amelioration; the patient felt better; his face was almost natural.

During the night of 16th to 17th, great complaints. On 17th, answers, correct; tongue, soft, not very moist; abdomen, meteorised, not painful; three dejections; pulse, moderately accelerated, rather soft; heat of skin, mild, without sweat; sputa, green, opaque, rather numerous; sonorous râle at the lower part of the left side of chest; various râles at the right, dry, sonorous, whistling, mucous, sometimes even a noise similar to that produced by fluid flowing out of a narrow-necked bottle; eschar on sacrum.

Until 23d, the day on which death took place, the condition of the mind of the patient was the same. On 22d, the patient, with the assistance of the ward tender, could still get out of bed; his tongue was very moist; his abdomen not painful; numerous alvine discharges on preceding day. The sputa were more or less numerous, opaque and greenish; a rather moist, crepitous râle, and sometimes a sort of gurgling were heard on 20th, at the anterior part of the chest. There was a universal crepitation, and the chest was sonorous on

percussion on 21st. On 23d, at the hour of visit, extreme dyspnœa ; speech, almost unintelligible ; death at ten, P. M.

A blister was applied to the chest on 21st.

Opening of the corpse thirty-four hours after death.

EXTERIOR. — Skin, corresponding to the blister on the chest, of rather a vivid red color without thickening ; that under the blisters of the lower extremities was rather thinner than natural.

HEAD. — No effusion under the *arachnoid* ; a spoonful of serous fluid in each one of the lateral *ventricles* ; *cerebrum*, firm, very slightly injected.

NECK. — *Larynx*, natural ; *trachea*, red, especially at its lower part.

CHEST. — *Heart*, healthy, containing much clotted blood. Some cellular adhesions between the left *lung* and corresponding *pleura* ; the summit of this lung and a great part of the lower lobe of the right lung were hepatized and of a pale red color ; the remainder of these organs were either congested or healthy.

ABDOMEN. — *Œsophagus*, healthy. Mucous membrane of the *stomach* covered by a viscid mucus over a part of its extent ; it was slightly mamelonated, of a bright rose color generally, of a darker hue near the pylorus ; it was very much softened in the great cul-de-sac, where no strips could be raised ; it became gradually more consistent, so that it had its usual degree of firmness in the pyloric region. The part nearest the pyloric valve in the duodenum was somewhat red, but otherwise healthy. The mucous membrane of the *small intestine* was of a proper thickness and consistence throughout its whole extent, even between the elliptical patches of the ileum. These patches, twenty in number, in the last four

feet of the intestine, were opposite the mesentery, and of a more or less deep blue color, nearer to one another, larger, and of a darker color according to their proximity to the ileo-cæcal valve; they were from two to two inches and a half in their greatest diameter. Those which were the farthest from the valve had upon their surfaces a number of small areolæ (orifices of crypts), of a whitish color, about half a line in size and surrounded by a bluish circle. The cellular membrane, corresponding to these patches, had the same color, and was as thick as the superjacent mucous membrane, so that the patches were about twice as thick as natural. The *large intestine* was so contracted that it would hardly admit of the entrance of the enterotome;* its mucous membrane was of a pale rose color, save in the rectum, where it was greyish and a little softened throughout its whole length. The *mesenteric glands*, which corresponded to the bluish patches, presented the same color and were about the size of small nuts. The *liver* was healthy; the bile of the *gall-bladder*, ruddy and very fluid. The *spleen* was scarcely larger than in health, of natural consistence and color.

This case is certainly one of that small number which have induced many persons who are attentive and impartial in their opinion, even to believe in these latter times, in the essential nature of fever. In fact, at the first glance, the patches of the small intestine appeared healthy; we observed only near the cæcum some bluish spots, and if we had not followed the different transformations which the elliptical patches of the ileum

* A large pair of scissors, peculiarly made, for the purpose of laying open the alimentary canal more speedily than is possible with scissors of the usual shape. — H. I. B.

undergo during the course of the typhoid affection, we might neglect a lesion which seems to be merely a change of color. But, when once these different transformations have become known we cannot do this, and we cannot doubt that the symptoms were in this case, as in the others, connected with a peculiar alteration of the elliptical patches of the ileum. With the exception of ulcerations which were not found, these patches had, in fact, the same characters as in other subjects in whom the affection continued a longer or a shorter time. They had, as in these patients, a bluish color, the hue of which was greater near the cæcum than any where else, more thickness than usual, and much less than they have generally when they are red as in patients who die during the acute stage. The corresponding cellular membrane was thicker than usual, and of a bluish color; such was, likewise, the fact with the mesenteric glands corresponding to the altered patches. If these last had been ulcerated the relation of the symptoms to the lesions would not have been doubted, but ulcerations do not change the nature of the alteration which we are now studying; they are merely one of the consequences, one of the periods, one of the degrees of it; they do not probably increase the intensity of the febrile action, of which fact we must have been satisfied in the previous chapter; their absence, therefore, in this case, is of no importance, and hence we must admit that the thickening and the blue color of the patches of the ileum suppose a more serious anterior alteration, a thickening, softening, a more or less marked red color, and thus the very grave symptoms of the typhoid affection, presented by this subject whose history we are studying now, had the same cause, and were connected with the same lesions, as in the subjects heretofore observed.

There can be nothing more instructive than this case, as no reasoning, no consideration could demonstrate so clearly the necessity of the greatest attention being paid in the examination of organs, and that circumstances, which appear the least important, may be decisive.

The inflammation of the mucous membrane of the stomach was indicated by no symptom. This fact can be attributed only to the late period at which it probably commenced, when the drowsiness was already more or less considerable. The inflammation of the pulmonary parenchyma, as shown by the crepitation, was perhaps still later in its commencement, and was, perhaps, with that of the mucous membrane of the stomach, the true cause of the death of the patient.

The following observation holds, to a certain extent, the mean place between the last three and those of the preceding chapter, or rather it forms a natural link between them, inasmuch as the symptoms and lesions being both slightly marked, the diagnosis of the disease, at the first glance, seems obscure.

FORTY-NINTH OBSERVATION.

Heat ; thirst ; pain below larynx ; cough with diminution of appetite at the commencement ; diarrhœa on the third day ; on sixth, redness of velum palati and pharynx ; pulse, extremely irregular and frequent ; afterwards delirium momentarily ; slight meteorism ; apparent convalescence ; finally, long continued delirium ; death on *thirty-sixth day*. Patches of the ileum, hard, of an orange-grey color, slightly ulcerated ; corresponding mesenteric glands, red and enlarged ; some ulcerations of the stomach ; elastic softening of one of the corpora striata.

A BRASS worker, æt. 20, of a moderately strong constitution, medium size, was admitted to the hospital of La Charité, Jan. 3d, 1823. He had been convalescent fifteen days from acute rheumatism ; he had been well during the week succeeding that on which he left the hospital, but he had not recovered his strength, and complained of a new attack of illness of eight days duration. At the commencement, pain with uncomfortable feeling of heat below the larynx ; cough ; clear sputa ; anorexia ; thirst ; general heat over the surface of the body ; no chills. The pains increased during the first five days ; they diminished afterwards ; the other symptoms continued stationary ; there was almost constant sweat ; after the third day there was diarrhœa, and no other symptom. The patient had not taken the bed, had taken merely beef tea and soup for nourishment, and had not made use of any common remedy.

On 4th, face, somewhat pale, otherwise natural ; senses and intellect, perfect ; neither headache nor pains in the limbs ; either sleeplessness or constant dreams during the night ; tongue, natural at edges, whitish in centre ; intense thirst ; mouth and fauces, natural ; unpleasant heat and sen-

sation of dryness internally from the thyroid cartilage to the sternum, augmented by deglutition ; voice, natural ; abdomen, supple, not pained by pressure ; three dejections on the preceding day ; cough, rather frequent, especially during the night ; sputa, simple, clear ; respiratory murmur, pure ; skin, moderately hot ; night sweat ; pulse, free, regular, at a hundred and fourteen, not hard. The patient complained only of the pain in the neck ; his posture was natural.

(Demulcent gargle ; barley water with honey ; six leeches to each side of the neck ; mustard pediluvium, twice.)

On 5th, redness without swelling of the velum palati and pharynx ; same pains as on the preceding day ; slight sonorous râle ; pulse, extremely irregular, before as well as after the venesection prescribed at the time of the visit, alternately strong and feeble, sometimes imperceptible ; pulsations of heart extremely feeble, often difficult to be heard.

(Venesection to $\frac{3}{4}$ xij. ; barley water with honey, three times.)

On 6th, the blood from venesection was neither buffed nor cupped ; the condition of the patient was not sensibly changed ; the characters of the pulse were the same ; a slight bellows sound (*bruit de soufflet*) at each pulsation of the heart ; sputa, somewhat streaked with blood.

On the next day, pulse, rather less irregular, at one hundred and twenty-five ; respiration, forty ; sputa, semi-transparent, covered with a stratum of blood generally ; pain in neck continued.

During the 8th, the face became pale and the features seemed altered. There was a little delirium during the following night, and on the morning of the 9th the answers of our patient were correct ; he, as usual, made no complaint,

save of his neck, which for the first time then pained him when pressure was made upon it. His pulse continued the same ; no dejections except by enemata.

From that time until 31st, four days before death, there were only very slight variations in the symptoms ; the dryness of the throat and pains in the neck continued ; the patient complained of nothing else. From 11th to 17th a stratum of coagulated blood was seen upon the pharynx, which disappeared gradually ; on 26th, this part was in a healthy state. The color of the tongue was natural ; the abdomen a little meteorised on 16th only ; the dejections infrequent ; the skin was moderately hot, sometimes slightly moist or chilly, and from 16th to 22d the pulse beat from ninety-six to eighty-eight times a minute. The sputa were rare, sometimes spotted with blood ; the cough was infrequent. Delirium occurred during the night between the 9th and 12th ; the patient did not think of his own state of health at any time, and seemed to be as little anxious about it as if it were the health of another.

Some rice fritters were given to him from 20th to 30th, and small pieces of fowl during the few last days of existence.

There was slight delirium in the night of 30th to 31st. On 31st, face paler than usual ; features, sunken, expression of mildness ; tongue, pale, a little dry and slightly villous in the centre ; thirst, moderate ; epigastrium, a little sensible to pressure ; abdomen, not distended, but flattened, never painful ; mucous râle at the left side of chest.

During the evening and in the night, tranquil delirium. Feb. 1st, at morning visit, same state of features ; patient complained of nothing save a little pain in left hip, which was red. Although very feeble, the patient was able to rise rather quickly in bed ; his pupils, exposed to a bright light,

remained dilated ; the epigastrium was not painful ; the pulse was regular, pretty full, at ninety-two ; tongue, pale, somewhat moist.

(Blisters to calves of legs ; ice upon head.)

Patient kept the ice upon his head from noon to four, P. M., without making any complaint ; but he had delirium and got out of bed in the evening. On morning of 2d, he answered well all questions, without complaining even that ice had been again applied to his head ; his pulse was rather large, sometimes irregular, at eighty-five.

He died the next day at three, A. M., without having uttered a word.

Opening of the corpse twenty-nine hours after death.

EXTERIOR. — Great marasmus ; nothing else remarkable.

HEAD. — No effusion under the *arachnoid*. *Cerebrum*, very moderately consistent, slightly injected ; corpus striatum of the right side yielded to pressure like rather elastic paste, as it were ; such was, likewise, the case with the *annular protuberance*.

NECK. — *Pharynx*, *æsophagus*, *larynx* and *trachea*, natural throughout.

CHEST. — *Pericardium*, natural. Left ventricle of the *heart* a little firmer than natural ; amber-like concretions in all the cavities ; *aorta*, white internally. *Lungs*, free from adhesions and healthy. Mucous membrane of the *bronchia*, of a vivid red color, especially of those of the left lung, which to their minutest ramifications were covered by a puriform mucus. No effusion into the cavity of the *pleuræ*.

ABDOMEN. — *Stomach*, a little enlarged. Its mucous membrane was of a bright red color in its superior extremity, much less bright in the neighborhood of the pylorus ; for the space

of two inches near the latter it had many partial ulcerations, from six to ten lines large ; in every other part it was of a proper thickness and was softened in the great cul-de-sac only. *Duodenum*, natural. The *small intestine* contained a moderate quantity of mucus of an orange yellow color in the parts where the mucous membrane was more or less red ; and in its last two feet there were twelve elliptical patches, opposite the mesentery, more or less prominent, of an orange grey color, about two inches long, each one of which presented in its centre an ulceration from two to three lines in diameter, by which the muscular fibres had been exposed and remained a little thickened. The mucous membrane was more or less softened in their intervals, where there was, likewise, a rather large number of miliary yellowish granulations. The *mesenteric glands*, corresponding to the ulcerations, were a little red and enlarged. The mucous membrane of the *large intestine* was of a proper thickness ; it was a little softened throughout ; of a dark red color in a small part of the right colon, of a bright red in the rectum to within two inches of the anus, and it had between these two extremities many patches of the same color. The *mesocolic glands* were somewhat red and enlarged ; the *liver* was of a deep red color, more consistent than usual ; the *bile* was moderately thick, of a rather light color ; the *spleen* was firm, of a dark red hue, and but slightly enlarged ; the mucous membrane of the *bladder* was healthy ; the urine contained in it was like that of a mare, as it were ; the other *viscera* were natural.

The lesions peculiar to the typhoid affection were, as we have seen, but slightly marked ; the symptoms themselves had, when collected together, a very different aspect from that which they usually present, and although they indicated the

typhoid affection rather than any other, still we could not refer them to their true cause, except by a very rigid analysis. In fact, the patient experienced at the commencement a marked febrile excitement, pains in the neck, which continued during the whole course of the disease; on the third day, there was a little diarrhœa, which continued a long while at the same degree, then it stopped; a little later we observed momentarily a slight meteorism, delirium during four days; the pulse was very much accelerated, very unequal for some time; after an apparent amelioration of the symptoms for more than a week, during which the patient began to take some nourishment, grave symptoms began to manifest themselves; the features became altered, the epigastrium sensible to pressure; the delirium re-appeared; on the fourth day of this new condition of things, the patient died, and among other things we found at the autopsy an evident inflammatory condition of the mucous membrane of the stomach and an alteration of the last elliptical patches of the ileum, similar to that which took place in the preceding observations. If, in addition to the symptoms previously mentioned, we add the almost stupid indifference of the patient during the whole of the disease, the reader will agree with me in believing that we could not really suspect any disease except that which we are studying in this work, although, perhaps, some accidental circumstances, such as the irregularity of the pulse, might have obscured the diagnosis for a certain time, and that the symptoms represented quite well what is called *slow nervous fever*.

The presence of some symptoms of which I have not spoken, (sudamina, rose-colored, lenticular spots), might have made the diagnosis more clear, but those of which I have spoken are sufficient, as it seems to me, to enable us to arrive at a knowledge of the true character of the disease, or at least to

fix our suspicions upon the specific alteration of the small intestine.

There was, in fact, an evident relation between the symptoms and lesions, and both indicated that the seat of the disease was, at its origin, in the elliptical patches of the ileum. The diarrhœa came on at the third day of the affection; the lesions of the mucous membrane of the large intestine were slight, and according to all appearances were of very recent date; although of small extent, the ulcerations of the elliptical patches were deep; the very slight thickening of these patches, connected with their greyish and yellowish color, indicated an old lesion which had taken a retrograde course; we cannot, therefore, refer the diarrhœa to any thing except to their alteration.

As to the mucous membrane of the stomach, its lesions were recent, and could not have had any part in the development of the first symptoms. This assertion is evidently correct for the red softening of the upper half of this membrane; the slight depth of its ulcerations does not allow of our considering that their commencement was very distant from the time of death, and the symptoms confirm this mode of viewing the subject, since, previously to the kind of relapse which the patient had, there was neither nausea, pain at the epigastrium, nor vomiting.

But was the condition of the brain (the consideration of which I have previously avoided,) of no influence in the production of certain serious symptoms, delirium, subsultus tendinum, and the profound indifference of the patient? It is impossible, as it seems to me, to answer this question either affirmatively or negatively. For, on the one hand, we observe these same symptoms, in a much more remarkable degree, in a great number of cases of the typhoid affection, in which the brain does

not present any appreciable lesion; and, on the other, we are ignorant of the acute or chronic course of this elastic softening, otherwise so worthy of attention, which it would be indispensable to know in order that a solution of the proposed problem might be made. I would add, likewise, in order that the reader may see more readily the necessity of suspending his judgment in this case, that local alterations of the brain are ordinarily accompanied by a more or less serious morbid change of the locomotive powers, which it is very easy to discover; likewise that such is the fact with lesions of the annular protuberance; that this lesion of locomotion did not occur in the present instance, and, therefore, if we must come to some decision upon the point in debate, we ought, on account of all these considerations, to regard this softening as of very recent date, and the symptoms anterior to the last days of life as being entirely independent of it.*

It is, moreover, remarkable, that all, except one, of the four observations upon which this chapter rests, relates to individuals who died at a late period of the affection, that is to say, when, after the usual course of the typhoid affection, the

* The uncertainty which exists in regard to the mode of viewing certain lesions of the brain, in a great number of cases, indicates that, notwithstanding the important works which have been of late published upon the diseases of this organ, its history is far from being complete. And it is not upon apparently the most interesting cases that we must depend for the supply of the want of knowledge we now labor under; it is not merely necessary to open the brains of subjects who have died with more or less grave cerebral symptoms, but in the actual state of science, if we were obliged to choose, it would be necessary to do exactly the reverse of this, as the lesions which cause the gravest symptoms are partly known. We cannot too frequently repeat, that medicine will never make any progress until all minds will be convinced that we must collect and compare *all* the facts, upon a subject, whatever they may be. — LOUIS.

most prominent characters of the alteration of the elliptical patches of the ileum must have disappeared.

The following facts will form, as it were, the complement of the second and third chapters relative to the diagnosis of the disease.

CHAPTER V.

OBSERVATIONS IN WHICH THE MAJORITY OF THE SYMPTOMS OF THE TYPHOID AFFECTION OCCURRED WITHOUT THE SPECIAL ALTERATION OF THE ELLIPTICAL PATCHES OF THE ILEUM.

FIFTIETH OBSERVATION.

Delirium, erysipelatous redness of the right leg, at the commencement and during ten days; drowsiness on the eleventh and twelfth days; diarrhœa a short time previously; eschars on the sacrum and right great trochanter; death on the *fiftieth day*. Softening of the mucous membrane of the small intestine, much less in the colon; universal and deep subcutaneous emphysema.

A YOUNG man, æt. 22, who had been at Paris seven years and a half, of medium size, of a rather strong constitution, and always in good health, was admitted to the hospital of La Charité, May, 27th, 1826. He had at that time been ill for five days; his disease had commenced at five, P. M., by a violent chill, soon followed by heat, pain in the limbs and delirium. I observed, on the same day, some swelling in the right groin and some redness on the lower part of the leg of

the same side, which was entirely erysipelatous after the day following. The delirium and heat continued ; there was considerable restlessness ; there were no dejections except by means of enemata. The patient was confined to diluents, and, on the first day, emollient cataplasms were applied to the leg and leeches to the groin.

On 28th, almost entire loss of memory ; confusion of dates ; speech, nevertheless, easy ; tendency to sleep ; extreme slowness in moving ; headache ; right leg painful and red over its whole extent, increased in size ; this increase of size was very considerable at the foot, which was œdematous ; the redness was unequal, slight below, bright above, and the corresponding skin was more or less hardened. The lower third of the thigh was of a light rose color, a little tense and enlarged ; the tongue was well protruded, not very moist, yellowish and villous at the centre ; the thirst was great ; the respiration somewhat accelerated ; the pulse, small, feeble, regular ; the heat of the skin moderate. There was no nausea nor vomiting. The patient made no complaint whatever.

The erysipelas made constant progress, and had extended over the whole thigh on the 4th of June, and on the same day the redness was brighter than usual, the thigh a little œdematous, and we observed, on the right foot, some superficial eschars, which produced no very bad effects, and which were situated where there had been some brownish phlyctenæ, some days before ; there was great desquamation of the epidermis over the whole leg. The delirium was more or less marked until that time ; but on the 6th, the patient had recovered, though imperfectly, the use of his intellect, and preserved it in some measure afterwards. There was no stupor. The dejections were rare ; the urine passed involuntarily ;

the tongue was dry, sometimes brownish at the centre, sufficiently natural at the edges; the abdomen not distended but flat, not painful on pressure; the skin hot and dry; the pulse less accelerated after the 31st of May than it was previously.

From the 4th to the 25th of June, the day of the patient's death, I made the following observations. The redness of the leg gradually diminished, and had almost disappeared on the 7th. On the same day, a black eschar, five inches in diameter, was seen on the sacrum; its edges were bleeding and bathed in a small quantity of pus; there was a similar eschar on the right great trochanter. From this time we made the patient lie alternately on the right [left?] side and on the abdomen, which he was generally very willing to do, in order to avoid the pain of the sacrum and great trochanter, though it was not considerable. The eschar of the sacrum had almost fallen off on the 17th, and the sore, which succeeded it, always presented a good appearance. On the 21st, the patient complained of some pain in the right foot. The tongue was dry and reddish at the centre until the 18th, afterwards natural; the appetite was more or less good from that period, and the patient ate some rice fritters. The dejections were numerous and involuntary on the 7th, less frequent afterwards, and the abdomen was always free from pain. The cough, which had commenced during the latter part of May, continued, but only in a slight degree. The pulse was sufficiently large, calm, or but a little accelerated, and always regular; it was eighty-eight on the 23d. The drowsiness was quite considerable, and the features were greatly altered on the 6th and 7th of June; after this period the countenance was sufficiently natural, the complexion clear, the sleep tranquil and prolonged through a part of the day.

On the morning of the 25th, the patient appeared to me to

be in the same state as on the preceding day ; but, a short time after I had left him he had a slight delirium, and died at eleven, P. M.

Lemonade and emollient fomentations were prescribed until the 6th, the day on which drowsiness occurred, and, on the same day, a potion was ordered made of extract of cinchona ℥ ss., acetate of ammonia ℥ ss., orange-flower water ℥ ij. and syrup of pink ℥ i. This potion was continued on the following day ; it contained but one drachm of the acetate on the 9th ; on the 11th, rice water with wine in it, was ordered, and was continued from that time.

Opening of the corpse thirty-eight hours after death.

EXTERIOR. — General emphysema, of which, however, there were no traces twelve hours after death, more considerable at the neck and at the sides of the chest than anywhere else, occupying the whole thickness of the limbs, with the exception of the subcutaneous cellular membrane, especially the right thigh, so that the muscular fibres were more or less separated from one another, and the muscles, as it were, dissected. The slightest friction raised the epidermis, and the corresponding skin was moist. The sores on the sacrum and great trochanter were livid, and the skin at their edges was more or less separated from the subjacent parts. There were some black spots on the right foot, some of which were seated in the epidermis, others in the dermis, which had the same color through its whole thickness. The right lower extremity was a little infiltrated ; its skin was pale and thicker, by one half at least, than that of the left side ; the corresponding inguinal glands were enlarged.

HEAD. --- Infiltration of a reddish serous fluid under the *arachnoid* ; a spoonful of the same liquid in the right lateral

ventricle, about one half only of that quantity in the left; some bubbles of air in the sub-arachnoid membrane. *Cerebrum*, of a good consistence; *cerebellum*, very soft, except its *crura*. The *tuber annulare* and *medulla oblongata*, natural.

NECK. — *Pharynx* and *larynx* a little livid, their mucous membrane otherwise perfectly healthy.

CHEST. — No adhesions. A quart of red serous fluid in each *pleura*. *Lungs*, a little engorged, less resisting than natural behind, not emphysematous. Two spoonfuls of serous fluid in the *pericardium*. *Heart*, livid, a little pale, extremely soft, its parietes thin, containing very little blood. *Aorta*, a little red internally, contracted, only twenty-four lines in extent at the free edge of the sigmoid valves, instead of twenty-nine, as it usually is at this part, in persons of the age of the patient.

ABDOMEN. — *Intestines*, very much meteorised; some ounces of blackish serous fluid in the right flank. *Æsophagus*, deprived of its epidermis, otherwise healthy. *Stomach*, of moderate size, containing a very small quantity of greyish liquid. Its mucous membrane was yellow in some parts of the great cul-de-sac, greyish, without being mamelonated, along the great curvature, for the space of eight or ten square inches, of proper thickness and consistence throughout its whole extent. The *duodenum* was natural. The *small intestine* contained a considerable quantity of bile and but little mucus. Its internal membrane was white or yellowish, except in some parts which were of a livid rose color, thin and softened, so that with very few exceptions I could not raise strips of more than one or two lines. The *elliptical patches* absolutely presented nothing remarkable, and had almost their natural degree of consistence. The *large intestine* contained pultaceous, fæcal matter, of a brownish yellow color in its first

third, more consistent and less colored in other parts. The mucous membrane was a little softened in its right half only ; and, of the whole intestinal canal, the great cul-de-sac was the only part where there was a little emphysema under the mucous membrane. The *mesenteric glands* were a little larger and more red than usual. The *liver* was of a moderate size, of a very uniform bluish brown color, soft, easily torn, emphysematous in some parts, where it was rather empty than full. The *peritoneum*, which covered it, was separated from it at many points by gases, and the whole of it was raised from the subjacent parts with the greatest facility. The *gall-bladder* was of moderate size, and contained a liquid of an orange color, of some consistence. The *spleen* was a little enlarged, blackish and much softened ; the *kidneys* were a little pale, small, soft, greenish externally ; the other *viscera* were healthy.

If the seat of the disease had been as deeply concealed as it was superficial, we should, very probably, have fallen into an error, and have thought that we had a typhoid affection to deal with, since delirium, drowsiness, eschars, diarrhœa and dryness of the tongue are among the most severe and the most characteristic symptoms of this disease. Undoubtedly, delirium does not commonly appear at the commencement of the typhoid affection, but, nevertheless, it does sometimes ; the drowsiness existed for a very short time only, but its duration has no fixed limit, and it is sometimes absent in the course of fevers ; if diarrhœa frequently manifests itself at their commencement, it likewise shows itself, in a very great number of cases, only at a late period ; and if the rather prompt development of certain symptoms and the slow appearance of some others could leave any doubt, the large eschars on the sacrum

and on the great trochanter, were well calculated, we must allow, to remove it. We might also, even after we had recognised the erysipelas as the source of the first symptoms, ask whether there was not some complication, since the eschars were not observed until the period when the erysipelas was following a retrograde course.

I would observe, however, that there were neither sudamina nor rose-colored, lenticular spots, those spots which are so frequent in the typhoid affection; that I have never seen large eschars in this disease unless there was at the same time more or less meteorism, which did not occur in the present case; and I think that I may conclude from these facts, that if symptoms, analogous to those which have been pointed out, develop themselves without our observing at the same time meteorism, rose-colored, lenticular spots, or sudamina, I may add deafness, we ought not to imagine the existence of the typhoid affection. Another circumstance ought also to guide us and remove the idea of a complication, I mean the residence of the patient at Paris for nearly eight years, a length of time after which the typhoid affection very rarely occurs.

Let it be remembered that the elliptical patches were not only healthy, but at their edges the mucous membrane was much softened; so that, altered or not altered, they are almost always in a state very different from that of the mucous membrane, with which they are in connection.

This observation, moreover, is a striking example of the influence of predispositions upon the development of accessory symptoms, since we cannot conceive of the sudden appearance of delirium and the development of eschars, unless we admit a predisposition. It is also worthy of remark, that the predisposition to gangrene seemed to be the consequence of ery-

sipelas ; for this inflammation terminated favorably, and if when it existed in its greatest degree, the disposition to gangrene also existed, it would have terminated in the mortification of the parts which were the seat of it ; this termination not only did not occur, but the subcutaneous cellular membrane was not even inflamed.

The state of the skin affected with erysipelas also deserves our attention. Though it had not been red for more than two weeks previously, it was still very thick at the time of death ; and this fact is not the only one which has made us observe that thickening of textures is one of the effects of inflammation which disappears the most slowly, and that we are very liable to fall into error, if we consider that a membranous organ, which is susceptible of a rapid thickening, has been the seat of a recent phlegmasia, if while it is not red nor softened, is not, likewise, at all thickened.

I shall not dwell upon the consideration of the emphysema, respecting which there was an inquiry in the first part of this work, and I proceed to the exposition of another fact quite similar to this last.

FIFTY-FIRST OBSERVATION.

Chills; anorexia; erysipelas of the left leg at the commencement; delirium on the fourth day, afterwards drowsiness; redness and swelling of the little finger of the left hand; excoriation of the scrotum; death on the *eleventh day*. Universal yellowness; emphysema of the neck; abscess of the left leg and of the right elbow, lined by false membranes; gas in the peritoneal cavity; elliptical patches of the ileum, healthy; its mucous membrane very much softened in its last four feet, &c.

A SACRISTAN of the Abbey, of a rather strong constitution, medium size, broad shoulders, who had been at Paris for thirty-six years was admitted into the hospital of La Charité, Sept. 6th, 1824. He had had hemorrhoids for twenty years, but they had been liable to bleed for the last ten years only; he was not subject to taking cold, and complained of having been ill for two days. At the commencement, pains of the head, a violent chill, anorexia, redness at the tibio-tarsian articulation of the left leg; the chill lasted six hours, and was accompanied by nausea and vomiting, and followed by great and dry heat, which continued afterwards without interruption. In other respects, there was no diarrhœa, nor pain of the abdomen; the urine was red; the mind perfectly clear; no tendency to sleep.

On the 7th, at the close of the second day, severe dull headache; pains, as if from bruises, in the arms; memory, correct; exercise of the intellect a little slow; slight tendency to sleep; rather acute pain, moderate swelling with redness, incompletely circumscribed about the tibio-tarsian articulation on the left leg; tongue, dry and rough at its centre, natural at edges; thirst, great; deglutition, easy; anorexia; abdomen, supple,

without pain, well shaped ; no nausea nor vomiting ; constipation ; pulse, large, regular, at ninety-five ; heat of the skin, moderate, a little dry ; slight injection of the integuments ; respiration, natural ; no cough.

(Bour. oxym. nitrée ; whey ; fifteen leeches to the articulation of the tarsus.)

On the 8th, increase of the redness and swelling of the left leg, which was of a burning heat through its whole extent. Other symptoms as on the preceding day.

During the following night there was slight delirium. On the 9th, redness limited to the lower and external part of the leg, œdema at the same point, desquamation commencing at the instep. No other change.

From that time until the 15th, the day of the patient's death, I observed as follows. The drowsiness was almost constant, but easily broken ; the delirium, violent on the 10th and 11th, so that we were obliged to confine the patient by means of a strait jacket, was afterwards slight. On the 10th, the features had lost their usual expression ; the swelling of the left leg was increased ; the little finger of the corresponding hand was enlarged and red ; and these symptoms were still more developed during the two following days. On the 13th, the left thigh was hot, and there was fluctuation at the elbow of the opposite side. On the 14th, the size of this part was increased ; the erysipelas of the little finger of the left hand faded ; the scrotum, red, enlarged, excoriated at many points, as had been the case for three days. On the 15th, the left thigh was somewhat swollen, and the swelling of the right arm was diminished. The pulse was quite large, from eighty to ninety until the 15th ; less large, without being very feeble on the latter day. The tongue was more or less of a ruddy

hue, blackish or thickly coated; the thirst always very great; the deglutition, easy. There were many dejections on 10th; they were numerous and involuntary on the 13th. I observed some meteorism on the 7th; it increased afterwards, and the abdomen was always free from pain on pressure. There were no rose-colored, lenticular spots at any time; the skin was universally yellow on the 12th, as were also the sclerotics, and this color became more intense on the succeeding days. The heat of the skin was constantly considerably greater than natural.

Death in the evening without suffering.

Opening of the corpse thirty-six hours after death.

EXTERIOR. — A yellow color, not of a very deep hue over whole surface of the body. Emphysema, limited to the cellular membrane of the neck. Left leg of a moderate size, a little red and bluish externally over a space of eight inches; corresponding skin, thickened; infiltration of pus underneath it, and, near the ankle, this liquid formed an abscess, the parietes of which were lined by a soft false membrane, like that which we find on the surface of blisters. There was a similar abscess on the right elbow; both of these were surrounded, throughout a part of their extent, by a red cellular membrane.

HEAD. — Traces of effusion under the *arachnoid*; four small spoonfuls of serous fluid in the lateral *ventricles*; *pia mater*, slightly red; cortical substance of the *cerebrum*, natural; the *medullary*, covered with numerous minute points of thick, black blood. The *cerebellum*, *tuber annulare* and *medulla oblongata*, natural.

NECK. — The mucous membrane of the *pharynx* and air passages a little livid, otherwise healthy.

CHEST. — Cellular adhesions between the *lungs* and the *pleuræ*, of less extent at the right than at the left ; four ounces of bloody serous fluid in each of them. A chalky concretion, and two small tubercular abscesses at the apex of the left lung. Both lungs were heavy and infiltrated with a bloody liquid, not frothy, throughout nearly their whole extent. Three ounces of reddish serous fluid in the *pericardium*. *Heart*, very soft, of good size ; its valves, healthy ; the sigmoid valves of the *aorta*, equally so, with the exception of some partial thickenings. *Aorta*, of a bright red color, with some blackish spots.

ABDOMEN. — Considerable meteorism. An incision made in the parietes of the abdomen, without involving the enclosed viscera, gave vent to an inodorous gas, the quantity of which, estimated by the retraction of the abdomen, was valued at three or four tumblers full. *Œsophagus*, healthy, excepting a slight submucous emphysema, near the cardia, which extended into a portion of the superior extremity of the stomach. The *stomach* was twice its usual size, and contained a little yellowish liquid. Its mucous membrane was of a bistre or greenish color, very slightly softened, and of a thickness proportioned to its size. The *small intestine* was moderately distended with gases, and contained a little yellow bile and mucus. Its mucous membrane had the same color in some parts, but it was generally whitish, of a proper thickness and consistence, excepting the last four feet of the ileum, where it was a little softened ; all the elliptical patches were healthy. The *large intestine* contained some fæcal matter, which was thick in its last third ; the size of the intestine was considerable ; its mucous membrane was of a greenish or yellowish color, and, with that exception, perfectly healthy. The *mesenteric glands* were very small ; the *liver*, of good size, very

soft, easily torn, of a greyish or pistachio (pistache) color throughout its whole thickness, without any trace of emphysema. There was a little emphysema at the neck of the *gall-bladder*, which contained a great quantity of thick, reddish bile. The *spleen* was greyish, almost of the color of the liver, through its whole thickness, and so soft that we could scarcely make a smooth incision in it with a good scalpel. The *kidneys* were a little enlarged; their cortical substance emphysematous, crepitating, and of an uneven surface, as if it had been covered with a large number of small cysts. There was a serous cyst, of the size of a walnut, between the bladder and the prostate.

With the exception of the absence of eschars and the rapid course of the disease, there was much analogy between this case and the preceding. The febrile action was considerable; the delirium, violent a short time after the commencement, on the third day; there was diarrhœa about the same period; the tongue was dry, blackish, thickly coated; the meteorism, which did not exist in the subject of the last observation, was considerable; it was very natural then to suspect the typhoid affection, if not as primitive, at least as secondary, especially on account of the meteorism, one of the most characteristic symptoms of this disease, and which we so seldom meet with in other diseases, and only under extraordinary circumstances. But the autopsy proves, nevertheless, how erroneous this supposition would have been.

Moreover, in this, as in the preceding observation, many of the most common symptoms of the typhoid affection were wanting. There were neither rose-colored, lenticular spots, sudamina nor epistaxis; besides, the patient had been at Paris a long time, and was of an age at which we do not observe

the special alteration of the elliptical patches of the small intestine ; other acute diseases are not complicated with this ; we had, therefore, still stronger reasons than in the preceding case for rejecting the idea of the typhoid affection. The age of the patient, when placed in opposition to the meteorism, ought to outweigh this symptom, which I have met with, though very rarely, in some acute diseases not of a typhoid nature, whilst I have not known any example of the affection under consideration in aged persons, and, moreover, one of the physicians whose situation obliges them to pay particular attention to the old, M. Rostan, told me that he had never observed it in aged persons.

I have just now said that except in cases of the typhoid affection, meteorism occurred very rarely and under extraordinary circumstances ; this observation is a new proof of the fact ; for what is less common, at or shortly after the commencement of erysipelas, than delirium, its continuance, somnolency, and a coated state of the tongue ? I will not add softening of the heart, of the liver, of the spleen and of the cortical substance of the kidneys, which had become emphysematous, though so general a softening, and in so great a degree, is rather rare ; but I would remark that these secondary lesions must be considered, in this case, as well in many of the typhoid affection, one of the principal causes of death, as we could not account for a fatal termination by the alterations which belong essentially to erysipelas.

Moreover, far from diminishing the importance of meteorism in the course of the typhoid affection, this case seems to me to add still more to it, as it shows that this disease supposes, if not a more serious alteration of the economy, at least a different one from that which occurs in other diseases, and

which, perhaps, causes sometimes, as in this case, their most dangerous tendencies.

Though the symptoms and lesions observed in this case and in the preceding, suppose analogous predispositions, there were, however in this respect, some remarkable differences; so that in one the predisposition to eschars prevailed, and in the other, the one under consideration, the tendency to suppuration. The false membranes which covered the two depots of pus, are worthy of remark, on account of the small number of cases in which authors have made mention of them.

If the seat of the principal disease ought to have prevented our falling into an error, and believing in the existence of the typhoid affection, in the subjects of this and of the preceding observation, it was not the case with regard to the individual whose history I am now going to give, and the error must have existed until the opening of the corpse.

FIFTY-SECOND OBSERVATION.

Diarrhœa; delirium with drowsiness at the commencement; afterwards pains in the abdomen; uninterrupted meteorism; eschar on the sacrum and on the trochanters; delirium, frequently interrupted; intellect, perfect; death on the *fifty-fifth day*. Moderate effusion of serous fluid into the lateral ventricles; mucous membrane of the large intestine partially softened; liver, fatty; left kidney, partly destroyed.

A VENDER of lemonade, æt. 14, of a delicate constitution, was brought to the hospital of La Charité, Feb. 15th, 1823. I was told that he had been ill for nineteen days, that his disease had commenced with vomiting, anorexia, a considerable diarrhœa, which had continued for fourteen days, that he had

had, from the third day, some delirium during the night, and drowsiness during the day, and had then sometimes talked incoherently. There had been considerable headache during the last four days, and the vomiting had not recurred after the first day. Leeches had been applied to the neck and temples at different times.

On the 16th, expression of dejection; cheeks, well colored; debility, considerable; subsultus tendinum; intense headache; memory, weak, imperfect; answers, short and prompt; senses, sound; tongue, pale and moist; slight thirst; deglutition, easy; abdomen, supple, free from pain, except upon strong pressure; pulse, regular, a little feeble, at a hundred and twenty-two; heat, a little elevated; respiration, free from râle.

(Sweetened barley water; a blister to one of the thighs; gum potion; an emollient enema; two cups of beef tea.)

From that time until the 25th of March, the day of the patient's death, that is, for the space of six weeks, I observed as follows. The headache was considerable, and there were frequent sighs and plaintive cries from the 20th to 27th day of the disease. From the 27th to the 31st, the whole body was painful, principally about the shoulders, upon the least touch, and the patient uttered cries like those which we designate by the word *hydreucephalic* (*hydrencephalique*). They were often repeated until the 37th day, and though the patient had not perfect command of his intellect, there was no real delirium from the time of his entrance into the hospital until that period; but after that and until death, the delirium was constant, especially at night, and accompanied by cries. Its intervals were accompanied by drowsiness, and sometimes, after having answered in a very satisfactory manner, the patient suddenly cried out "call the guard!" On the 32d day we

observed an eschar on the sacrum, and an erysipelatous redness on the left hip and the upper part of the thigh of the same side. This redness was more extensive on the 34th day, and had almost disappeared on the 35th, the thigh still preserving an increase of size, which continued until the 39th. On that day the left leg was erysipelatous, the desquamation of the epidermis considerable, and the great trochanters presented large brownish spots. These eschars and those of the sacrum were detached on the 45th day, and some spots of a scorbutic character were seen on the neck and arms, on the 53d. The skin was always quite hot; there was a chill on the 35th day. The pulse was a hundred and ten on the 21st, a hundred and twenty-nine on the 28th, a hundred and six on the 49th, a hundred on the 53d, and became gradually more feeble. The tongue, sometimes a little clammy, was otherwise natural from the 20th to the 29th day, afterwards dry at intervals, and, from the 43d to the 54th, I observed some small ulcerations upon it, as also upon the lower lip. The dejections were promoted by castor-oil from the 24th to the 28th, and were afterwards more or less frequent and often involuntary. The abdomen was a little sensible to pressure on the 22d; the patient complained of it on the 23d, and assured me that he had been suffering there for five days; and from this time until the 44th day the abdomen was meteorised. The ptisan was often vomited from the 22d to the 53d day. I did not hear any râle at any period of the disease, and the respiration was slightly accelerated.

The agony of death lasted about twelve hours, during which, the eyes, covered with mucous striæ, seemed to oscillate mechanically in their orbits, whilst the head made continual motions to the right and left.

On the 22d day a cold infusion of cinchona was prescribed

with aromatic fomentations and a camphorated enema of camomile ; on the 22d and 27th manna and castor-oil ; leeches to the ears on the 25th, a bath on the 32d ; a tonic potion with wine and syrup of cinchona, an ounce of each, on the 34th, which was continued until the 44th ; after this period, the simple gum potion was alone employed.

Opening of the corpse fifteen hours after death.

EXTERIOR. — The face had the same expression as during the last days of life ; the epidermis at the middle of the back formed a large vesicle filled with a serous and bloody fluid, and a little below, the skin was partially destroyed over a small extent. The sacrum and trochanters were laid bare at the bottom of an ulceration, three inches and a half in diameter on the sacrum, three inches only on the trochanters ; the skin was thinned and separated at their edges from the parts underneath to a certain extent.

HEAD. — Very slight effusion of a rose-colored serous fluid into the *arachnoid* covering the right side of the upper part of the brain. Considerable and general effusion under the arachnoid ; about a spoonful and a half of clear serous fluid in each one of the lateral *ventricles*. *Cerebrum*, moist, of a good consistence. The remainder of the brain perfectly healthy.

NECK. — The mucous membrane of the *larynx* and *trachea*, natural ; that of the large *bronchial* tubes of a delicate rose color.

CHEST. — Cellular adhesions very much circumscribed between the lung and the pleura of the right side. No effusion. *Lungs*, of a rose color and light anteriorly ; their lower lobes of a pale red behind, hard, not granulated ; no fluid flowed from these parts when cut, and they floated in water on a level with the surface. *Heart* and *aorta*, perfectly healthy.

ABDOMEN. — *Œsophagus*, natural. *Stomach*, of medium size, containing a little bile and some mucus. Its internal membrane was slightly spotted red in the great cul-de-sac, velvet-like, of a good consistence and thickness throughout its whole extent. The *duodenum* was healthy. The mucous membrane of the *small intestine* was pale and perfectly sound throughout. Such was the case, also, with the *elliptical patches* of the ileum, all of which were thin, white, or slightly covered with grey points, as is observed in their natural state. The mucous membrane of the *large intestine* was white, softened in the right colon, and from that spot it increased rather rapidly in consistence. The *mesenteric glands* were pale, small and healthy. The *liver* was of moderate size, of a fawn color, and greased the scalpel. The *spleen* was natural. The left *kidney* was a little uneven on its surface, without any other appreciable alteration. There was nothing remaining of that of the right side except the summit, which was perfectly healthy; we found nothing below but a membranous semi-transparent sac, formed by the external covering of the kidney and the internal membrane of its pelvis, containing a liquid of the odor and color of urine. The mucous membrane of its pelvis was a little thick, and the corresponding ureter, of the size of the little finger, opened by a wide orifice into the bladder. Other *viscera* sound.

This fact presents, as we see, the union of almost all the most characteristic symptoms of the typhoid affection. At the commencement, there was diarrhœa alternating with drowsiness and delirium; shortly after, there were pains of the abdomen, more or less decided meteorism, which continued until death; after these, eschars on the sacrum and great trochanters, and return of delirium. What more was wanting to make us

certain that the patient was affected with the typhoid disease, and that we should find on opening the corpse the elliptical patches of the small intestine more or less seriously altered? Notwithstanding this, the patches and the corresponding mesenteric glands were healthy, and with the exception of a small extent of the mucous membrane of the colon, the whole intestinal canal was natural, and how can we then admit that this patient had had the typhoid affection? In fact, as the patient did not die until after the fifty-fifth day of the disease, we might believe that the alteration of the elliptical patches had disappeared, and say that their soundness proves nothing. Although this is not impossible, and a supposition of this kind would explain every thing, I do not believe it admissible in the present state of our science, since some of the patients, whose cases we have previously observed, died after almost as long a period, without the traces of the disease being effaced.

It will still, perhaps, be said, that as the present patient was much younger than the others, I compare cases which are not parallel; that the alteration which would not be effaced, in a certain time, in a man of thirty years of age, may disappear, in the same interval, in a child. This objection, certainly, is not without force, but it cannot establish the fact in question, namely, the special lesion of the agglomerated crypts of the ileum; it only shows that we ought not absolutely to reject it. It belongs to those who devote themselves to the diseases of children, to solve this problem, and to inform us, whether the alterations of the elliptical patches are the same at an early and at a more advanced period of life, and, on the supposition that they are, whether nature repairs the defect with different degrees of rapidity at these different periods.

I said above, that every thing would be explained if we

could demonstrate, in the case under consideration, that the elliptical patches had been altered ; for, if they had not been altered, to what organ and to what lesion shall we refer the first symptoms ? The mucous membrane of the colon was softened through a small extent only, and we cannot, with certainty, attribute to that the diarrhoea at the early period of the disease, still less can we allow that it caused delirium. Neither can we see in the first symptoms the proof of an acute hydrocephalus, and the quantity of serous fluid, which existed in the cellular membrane of the arachnoid or in the lateral ventricles, was only in proportion to the duration of the agony of death. The lesion of the left kidney was certainly of long standing, and the fatty state of the liver does not occasion the symptoms which were observed before the development of the eschars.

However, if the problem in question should be solved negatively, if it should be demonstrated that the elliptical patches were not altered, this fact would in no degree diminish the certainty of the anatomical characters attributed to the typhoid affection, and would by no means prove that it is independent of the alteration of the agglomerated crypts of Peyer. Have we never seen, especially in young persons, one disease mimic another almost perfectly ? And why should not that occur in the typhoid affection which occurs in other diseases ? If an individual should die of a disease which was supposed to be a pneumonia, and we should find no traces of it on opening the corpse, we should not maintain, in opposition to the testimony of the organs, that the patient had experienced a pneumonia ; we should say that this disease had been mimicked, and that the true one had been masked ; we should form no conclusion against the anatomical characters of pneumonia.

As we should do with relation to this disease, so we ought to do with relation to the one under our particular consideration, unless we have two rules, and substitute caprice for reason.

CHAPTER VI.

PERFORATION OF THE SMALL INTESTINE.*

THIS perforation which, in the course of acute diseases, is peculiar to patients with the typhoid affection, occurred in eight out of fifty-five whom I examined after death, or in a seventh part of the cases ;† a considerable proportion, and one which astonishes us, when we reflect that so serious an accident, which generally announces itself by the most formidable symptoms, has scarcely been known even to a small number of physicians, except within a few years, and is entirely unknown to the majority.

It was commonly single, sometimes double or triple (Obs. 53) ; it occurred in the neighborhood of the cæcum, in the centre of the ulcerated elliptical patches, and, in the majority of the cases, in patients whose disease did not appear to be severe, or was more or less completely latent (Obs. 41, 42, 43, 44, 45) ; this circumstance rendered the symptoms, that accompanied it, still more prominent.

* For more complete details, see my Memoir on Perforation of the Small Intestine, from which I have borrowed the two observations of this chapter. — LOUIS.

† I include the cases whose histories were hardly complete except in their anatomical details. — LOUIS.

This perforation occurred once only at an inch and a half from the ileo-cæcal valve, in that part of the ileum, which presents, over its whole circumference, a number of small, irregular patches owing to crypts, on the anterior face of the intestine, and not opposite to the mesentery, as I observed in other cases.

The period of its appearance was very various. It occurred on the twelfth day of the disease in one case (Obs. 54), on the eighteenth in two others (Obs. 45, 53), between the twenty-second and forty-second in the last five (Obs. 31, 41, 42, 43, 44).

Very serious symptoms announced it in five patients; it was, if I may say so, latent in three others, though death did not appear to ensue less promptly. These symptoms were a sharp and rending pain, experienced *suddenly* in the abdomen, soon followed by a loss of expression in the features, by nausea, vomiting, usually accompanied by chills, and all the most characteristic symptoms of an intensely acute peritonitis. In all the cases, in which these symptoms occurred, we easily recognised their source; so that, if in the course of a severe or slight typhoid affection, or even under unexpected circumstances, the disease having been latent till that moment (Obs. 41, 42, 43), there supervene suddenly in a patient with diarrhœa, pains in the abdomen, aggravated by pressure, accompanied by loss of expression in the features, and, more or less speedily, by nausea and vomiting, there must be a perforation of the small intestine.

The sudden appearance of a violent pain in the abdomen, accompanied by change of the features, would be insufficient for us to form the same diagnosis with entire certainty; this pain must be aggravated by pressure. Thus, I have seen die, in less than three days, at the hospital of La Charité, a woman

affected with pulmonary phthisis which had made but little progress, who presented as the sole recent lesion, at the autopsy, a very large number of red lenticular spots throughout the whole extent of the mucous membrane of the colon, though she had experienced, in all their violence, the symptoms that have been indicated. But in this case, the pain of the abdomen was not aggravated by pressure.

Not only is this increase of the pain by pressure necessary, but it is also necessary, for the security of the diagnosis, that the pain should extend more or less promptly over the whole abdomen. The following fact proves this. It relates to a man of thirty years of age, whom I observed in 1823, at the same hospital, where he came to be treated for a disease of the stomach. He presented in fact all the symptoms of a chronic gastritis; but, after remaining some days at the hospital, he was suddenly seized with a violent pain at the epigastrium, soon accompanied by nausea, vomiting, alteration of the features; this pain, which was aggravated by pressure, occupied but a very small space, and was always limited to the region where it showed itself; it was, like the other symptoms, more or less violent during four days, after which the patient died; and at the opening of the body we found, for the principal lesion, a considerable effusion of blood behind the peritoneum, in consequence of the rupture of an aneurism of the cæliac artery. The patient had not, moreover, experienced at any period pulsations at the epigastrium, neither had I perceived them, though I had felt that part at different times.

The seat of the pain ought, doubtless, to have prevented the suspicion of a perforation of the small intestine; but the aneurism might have taken place, and have burst immediately above the bifurcation of the aorta, and then, the seat of the pain no longer removing the idea of a perforation of the small

intestine, it would have been impossible to have avoided the error except by reflecting that the pain remained limited to the point, where it manifested itself at the commencement, that thus it had not the character of that which would be produced by the effusion of any liquid whatever into the peritoneal cavity.

However, after having presented the characters that I have indicated, the pain may diminish so rapidly that the patients may have no fear for their situation (Obs. 42, 44); but other symptoms ought to prevent the physician from sharing this security; the features remain shrunken; the nausea and vomiting continue, or the face, without being deeply altered, is pale and purplish; the patients experience continued chills, wrap themselves as carefully as possible in their bed-clothes, (Obs. 54, 42), and fear the least change of position; they have the appearance of a man, who, after taking a cold bath, is unable to get warm again. I have observed this in a very marked degree in a case of perforation of the small intestine by a bullet, which had passed through it in many points. When such symptoms are present we cannot avoid the diagnosis, especially when the pain has been violent at the commencement, and has continued a certain length of time. And if the amelioration should be apparently much more marked, we ought not to give up our first decision (Obs. 43).*

The following observation is a remarkable example of the symptoms which now occupy our attention.

* If the symptoms under consideration should show themselves under other circumstances, in persons whose age prevents us from suspecting the existence of the typhoid affection, &c., we ought still to pronounce that there is a perforation, but not of the small intestine; and probably the symptoms would be less violent than in the latter case. — LOUIS.

FIFTY-THIRD OBSERVATION.

Indefinable uneasiness for a month, afterwards violent febrile excitement, spasms of the neck, and on the sixth day slight delirium ; soon after all the symptoms of a perforation. Ulcerations of the small intestine, three of them perforated ; slight softening of the mucous membrane of the stomach ; mesenteric glands, enlarged and somewhat red.

A WOMAN, æt. 26, of a pretty strong constitution, middling height, moderate fullness of person, great sensibility, was admitted into the hospital of La Charité, Sept. 22d, 1822. She had been at Paris three years, and had been ill for eight days. The affection was preceded for a month by indefinable uneasiness, and had commenced with a violent chill, followed by heat, anorexia and thirst. This state, to which were added spasms of the throat, continued for some days ; on the sixth, the ideas of the patient were at times deranged ; on the seventh, she had a rather severe headache, and was brought to the hospital, where she uttered loud cries during a part of the night. She had said nothing of pains in the abdomen.

On the 23d, her face was pale and a little altered, sometimes distorted, at others calm and without any remarkable expression ; there were spasmodic motions of the lower jaw. The patient, who answered M. Chomel only in monosyllables, and did not seem to have all the time perfect command of her reason, replied fully to the questions of the sister of charity, assured her that she had no pain except in her feet, to which sinapisms had been applied during the night ; her tongue was a little clammy, and of its natural color ; there was no thirst ; the abdomen was a little meteorised and sensible to pressure ;

the pulse at ninety, neither full nor hard ; the skin was quite hot ; the respiration quite frequent, the respiratory murmur mixed with a dry and sonorous râle ; the sputa were rather liquid, and some of them tinged with blood ; the cough was rare.

(Venesection to $\frac{3}{4}$ x. ; cold lotions to the head ; sinapisms ; blisters to the thighs ; lemonade.)

Tranquillity was restored ; there were no cries during the day or night ; the patient conversed a little and rationally with the persons who came to see her.

However, on the next day, the 24th, her face had an anxious expression ; she said that she sometimes had pain over her whole body, sometimes in her head only ; the spasms of the lower jaw continued ; the mouth was filled with thick mucus ; the abdomen was supple and not painful on pressure ; the skin was always quite hot ; the pulse a little less frequent, fuller than on the preceding day ; the sputa were adhesive.

(Same prescription.)

The patient was very tranquil the remainder of the day ; but, in the middle of the night, she was seized *suddenly* with a violent pain in the abdomen, which forced from her loud cries of distress.

On the 25th, at the time of visit, there was loss of expression in the features, considerable sinking, dullness of eyes, more paleness of the face than usual, perfect clearness of mind ; the tongue was dry, in part blackish and thickly coated ; the abdomen, meteorised, extremely painful ; the pain was burning, aggravated by the least pressure and by drinks ; the pulse was slightly accelerated, small and feeble ; the respiration was more frequent than on the preceding day ; there was not either nausea or vomiting. M. Chomel, who perceived the cause of the peritonitis, prescribed emollients under

every form. The pains of the abdomen were very acute during day and night, and there was soon vomiting of bile.

On the 26th, the patient answered questions very accurately; her face was wholly altered from its natural expression, and had the appearance of pain and prostration; it was pale, like the rest of the body; the teeth and tongue were dry; the nausea, constant; the dejections, before rare and difficult, were now numerous and liquid; the hypogastrium was extremely painful and tense; the pulse was thread-like; the parts exposed were cold.

The patient passed the night moaning aloud and vomiting until death, which took place on the next day, the 27th, at six, A. M., fifty or fifty-four hours after the commencement of an extremely painful peritonitis.

Opening of the corpse twenty-six hours after death.

EXTERIOR. — Paleness without discoloration of the skin in stripes as from the blows of rods. There was nothing else remarkable.

HEAD. — Cerebral veins distended with blood; the *brain* was moist, otherwise perfectly healthy.

CHEST. — A slight effusion of reddish serous fluid in the cavity of the *pleuræ*; a very slight serous infiltration at the posterior part of the *lungs*, especially of the right. The *heart* and the *aorta* were perfectly healthy.

ABDOMEN. — A small incision made in the parietes of the abdomen gave vent to an inodorous gas. The epiploon covered the small intestine, and adhered to it slightly. A turbid and reddish liquid, containing albuminous flocculi, filled the small pelvis, and spread itself as far as the concave face of the liver. The convolutions of the intestines adhered together by means of false membranes, soft, and of a yellowish color.

There was seen a hole of two lines in diameter in the ileum, three inches from the cæcum, situated at the centre of one of the ulcerations which were found there ; there were two smaller ones above. About all three the peritoneum was of a light red, to the breadth of five lines. Internally, the mucous membrane was of a very slight greenish yellow color ; it was of proper thickness and consistence, and presented, at its termination near the cæcum, to the length of a foot and a half, ten ulcerations. These were from six to ten lines in breadth, with angular edges, prominent, and of a greyish hue, formed by the thickening of the mucous membrane of the elliptical patches upon which they were found, and by that of the corresponding cellular membrane. The ulcers were pale, and by them the healthy muscular membrane had been exposed, although this last was still covered, in most points, by a thin lamina of the cellular membrane. Finally, these membranes and the peritoneum were destroyed at the point where the perforations were found. The *mesenteric glands*, corresponding to the altered elliptical patches, were enlarged and reddish. The mucous membrane of the *large intestine* presented nothing remarkable. That of the *stomach* was full of minute, red points ; it was a little softened in the great cul-de-sac, and healthy in other parts. The *liver* was natural. The bile of the *gall-bladder* was not very thick ; it was of a very deep color. The *spleen* was enlarged and softened.

The sudden appearance of pain in the abdomen, its increase on pressure, the entire alteration of the features, then nausea and vomiting, could leave no doubt either of the existence of peritonitis, or of the cause which had produced it. And in a similar case, there would be the less reason for a doubt as to the cause, from the fact, that with one exception, (the case of

a woman affected with puerperal metritis), I have never met with peritonitis in the course of acute diseases, but as a consequence of perforation of the small intestine, in subjects affected with the typhoid disease. A peritonitis developed in the course of this disease indicates then, almost certainly, the existence of a perforation, independently of the violence of its commencement.

A fact, which seems to me worthy of being remarked, is this, the spasmodic motions ceased at the moment when the perforation occurred, that is to say, under a circumstance which would seem the most capable of exciting nervous symptoms of every kind, and of rendering more striking those which already existed.

The affection otherwise followed its usual course, the largest and deepest ulcerations being nearest the cæcum. But at what period shall we fix its commencement? If we remark that the color of the patches was not such as we observe in persons who die as rapidly as we must admit this patient did, if we refer the commencement of the disease to a moment when there was a violent chill, we shall be induced to believe that the disease began when the patient first experienced the indefinable uneasiness of which we have spoken, and to admit that the affection, during this period, had the latent form explained in the second chapter. I would add, that by adopting this view, which seems the most probable, we account for the derangement of the health previous to the period when the serious symptoms commenced, which it will be impossible to do under any other supposition, the small intestine being almost the only diseased organ, the only one whose alteration appeared already of long standing.

But, as I have said, notwithstanding the violence of its cause, the peritonitis was doubtful or very obscure in three

cases. In one of them, thirty-six hours before the fatal termination, there was only a slight pain at the hypogastrium, and a very decided expression of loathing, which did not exist before; and these symptoms, which, doubtless, depended on the perforation, were too slight not only for us to pronounce positively upon its existence, but even to make us suspect it. Perforation took place, in this case, at the anterior part of the ileum, and did not give the fecal matter so free a passage into the abdominal cavity as in the other individuals; but this circumstance did not explain satisfactorily the absence of the characteristic symptoms (Obs. 32). Perforation was less completely latent in another subject. If he did not experience a violent and sudden pain in the abdomen, his features presented a great alteration more than twenty-four hours before death, and, when I saw him for the last time, the hypogastrium was meteorised and very sensible on pressure. The patient did not complain of this; his attention seemed entirely absorbed by the sensation of extreme weakness, and he spoke of nothing else. Notwithstanding this absence of sudden pain, the great and rapid alteration of the features, together with the meteorism and sensibility of the hypogastrium, ought to have made us strongly suspect the existence of a peritonitis, and, after what I have just now said, a perforation (Obs. 53.)

The following observation, which is the third of those under consideration, is an example of a new modification of the symptoms which occupy our attention, very difficult to be appreciated.

FIFTY-FOURTH OBSERVATION.

Anorexia, diarrhœa, cough at the commencement; afterwards, chills frequently renewed; at a later period slight meteorism; slight delirium; constant chills; death on the *twentieth day*. Hard patches in the ileum, some ulcerated, others not so, one of them perforated; corresponding mesenteric glands, enlarged, of a delicate rose color, but little softened.

A STONE cutter, æt. 23, of medium size, of a quite robust constitution and well-developed frame, who had been at Paris for six months, had experienced, during this period, at different times, a slight diarrhœa, and at each attack of it, a little fever, without, however, being obliged to discontinue his occupation. The diarrhœa had re-appeared, during the last two weeks of October, accompanied, at its commencement, by cough, headache, loss of appetite and thirst; and the patient, having been exposed to wet on the fifth day of this relapse, had chills almost immediately; after which the dejections became very numerous, the thirst very great, the skin being never very hot. The chills were renewed by the most trifling causes; there was no headache except during the first four days, and the patient having given up the use of wine or wine and water, the thirst had greatly diminished during the last three days. He had always been temperate, had committed no excess, and was admitted into the hospital of La Charité, Oct. 31st, 1822.

On the 1st of Nov., posture, natural; moderate debility; face, of a good color; answers, ready and to the purpose; tongue, dry and whitish at the centre, of a rose color at the edges; intense thirst; anorexia; dejections numerous and without colic; urine passed with ease; abdomen without pain; slight cough; respiratory murmur, without any mixture of râle; skin, a little injected; heat, moderate; pulse, large, regular, at ninety-two, without hardness.

(Venesection to $\frac{3}{4}$ xij. ; barley-water sweetened and acidulated ; flaxseed enema, twice.)

No obvious change during the day ; dejections more numerous than usual during the night ; the blood was covered with a buffy coat, two lines in thickness, and of considerable consistence.

On the 2d, the skin was very much injected ; the pulse at eighty-four, a little fuller and harder than on the preceding day ; the temperature a little more elevated. The sweats were copious, and many sudamina were seen ; the abdomen was slightly meteorised ; the other symptoms had not sensibly changed.

(Pisan of barley water ; flaxseed enema.)

The day was tolerably good ; there was a slight epistaxis during the night, and on the next day, at the hour of the visit, the state of the intellect and of the organs of sense was very good ; the face, of a purplish color ; the tongue, somewhat green ; the abdomen, still without pain, a little meteorised ; the skin, quite hot ; the pulse, variable, a little more accelerated than on the previous day ; the respiration, frequent ; the respiratory murmur, mixed with a dry and sonorous râle. The dejections had been less numerous than on other days ; there were no sweats.

(Same prescription.)

The patient had a little delirium during the night. On the 4th, at six o'clock, A. M., I found him very much sunken ; the exercise of his intellect was troublesome to him ; the eyesight, feeble ; the tongue, as on the day before ; the meteorism increased ; the abdomen, not pained on pressure ; skin, very hot ; the patient, however, *covered himself with his bed clothes very carefully.*

(Blisters to legs.)

The delirium was considerable day and night ; the chills almost constant. On the next day, at the hour of the visit, the patient spoke incoherently ; we could scarcely fix his attention for a second ; and he made continual efforts, as he had done during the night, to get out of bed ; his face, hands, and the upper part of his chest were of a purplish color ; he had the external appearance of a man who, having taken a cold bath, cannot get warm again ; his abdomen was very much meteorised, not painful, except on a strong pressure, which produced a little distortion of the features.

The same symptoms continued until death, which took place on the same day, at seven, P. M., without the patient having had vomiting. The respiration began to be difficult at one, P. M.

Opening of the corpse fourteen hours after death.

EXTERIOR. — Moderate fullness of person ; muscular system well developed ; extreme rigidity of body ; no discoloration of the skin in stripes.

HEAD. — *Brain*, very firm, slightly injected ; two small spoonfuls of serous fluid in each one of the lateral *ventricles*.

CHEST. — *Heart*, perfectly sound. *Lungs*, of a purplish color behind, otherwise natural ; *bronchia*, of a bright red color.

ABDOMEN. — The internal face of the anterior paries of the abdomen was of a more or less bright red color, owing to the injection of the peritoneum ; the intestines presented the same color in many points, and wherever this hue existed, the peritoneum was raised with much facility. The convolu-

tions of the *intestines* were united by false membranes; the small pelvis and the flanks contained a large quantity of turbid liquid, of a yellowish and greyish color, and of an extremely fætid odor. There existed upon the ileum, six inches from the cæcum, a hole of the size of a large pin's head, situated upon the centre of a circular ulceration of six lines in diameter; there were found near it three others, not perforated, by which the muscular membrane had been exposed, and the edges were more or less thick. They were situated at the middle of very prominent hard patches, which were somewhat numerous in the last two feet of the ileum. All these patches, more or less ulcerated, were owing to the development of a substance of a slight rose or yellow color. At the corresponding points, the muscular membrane was thickened, yellowish, friable, and more or less seriously altered. The mucous membrane was generally of a greyish color, and a little softened. The *mesenteric glands* were of considerable size, some of them an inch in diameter, and of very great consistence, most of them of a delicate rose color; not one of them was of a dark red through its whole thickness. The mucous membranes of the *stomach*, *duodenum* and *large intestine* were natural, with the exception of some red spots found in the large cul-de-sac of the stomach. The *liver* was rather soft and purplish; the bile of the *gall-bladder* thick, and of a deep green color; the *spleen* was enlarged, being eight or nine inches long, of natural color and consistence. The other *viscera* of the abdomen presented nothing remarkable.

The incomplete development of the symptoms of perforation was, probably, owing to the cerebral affection. However, it was not impossible to recognise this lesion; for, some hours after the appearance of delirium, the patient was sink-

ing, very sensible to cold, and covered himself with care ; all of which symptoms had not occurred before ; afterwards, until death or during a day and a half, he had almost constant chills, and twelve hours before death, his face, hands, and the upper part of his chest were of a purple color, his abdomen was a little sensible on pressure and very much meteorised. If the chills indicated the development of a new affection, the pain of the abdomen, together with the great increase of the meteorism, showed that the abdomen was the seat of it, and we could not even then suspect hardly any thing but a perforation. For, when any other affection manifests itself during the course of an acute disease, and occasions a chill, this chill is usually of short duration ; and in no case, except that of perforation, have I found its effects so strongly marked. So that I think that I can say, generally, that if a patient with the typhoid affection experiences delirium, then a chill which continues without, or almost without, interruption for twenty-four hours and more ; if soon afterwards his face, extremities, and a part of his body become of a purplish color, considerable meteorism comes on quickly, the abdomen appearing painful for the first time ; if these symptoms are found thus united, we ought to decide that very probably there is a perforation.

I would add to the preceding, which the time that has elapsed between the commencement of the perforation and death, has varied from twenty to fifty-four hours ; so that one of the patients did not die until seven days even after the development of the first symptoms, though they were very violent at the commencement, and were not calmed until the beginning of the fourth day (Obs. 43). This fact is doubly remarkable, as it shows, 1st, that when the symptoms of perforation are once well marked, we ought not to give up our diagnosis, when they

Of the second,

31	were	from	$15\frac{1}{2}$	to	20	years	of	age,
39	"	"	20	to	25	"	"	
13	"	"	25	to	30	"	"	
5	"	"	30	to	39	"	"	
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88								

The slight difference, observed between the mean age of the patients who died and of those who recovered, is not owing to chance, for the reader will perceive that before the age of twenty-five years, the number of those who recovered is much greater than that of those who died, whilst after that age the number of both is almost the same. So that if youth is a necessary condition for the development of the typhoid affection, this affection is so much the less formidable according as those who experience it are younger.

No one of the individuals under seventeen years of age (they were six in number) died.

ARTICLE II.

CHANGE OF HABITS.

With some exceptions, which I shall point out, the patients with the typhoid affection had been at Paris but a short time ; those who recovered had been there, mean time, fourteen months ; those who died, eleven months. Whence we must conclude that if Paris and the mode of living there are favorable to the development of the typhoid affection, the disease is so much the less dangerous according as the residence in the city has been longer ; this, it would be easy to foresee, from the usual effects of becoming accustomed to any climate.

The following tables are a detailed proof of the preceding remarks. Of the patients who died,

10	had been at Paris from	2 to 3	weeks,
8	" "	" "	3 to 5 months,
10	" "	" "	6 to 10 "
9	" "	" "	11 to 20 "
5	" "	" "	20 to 30 "
2	" "	" "	4 to 8 years.
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44			

Of those who recovered,

7	had been at Paris from	2 weeks to	3 months,
19	" "	" "	3 months to 5 "
19	" "	" "	6 " to 10 "
20	" "	" "	11 " to 20 "
12	" "	" "	20 " to 30 "
1	" "	" "	30 " to 40 "
7	" "	" "	4 " to 8 years.
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85			

That is to say, of seventy-three patients with the typhoid affection, who had been at Paris from two weeks to ten months, twenty-eight, or more than a third, died; whilst of fifty-six, who had been there for a longer period, sixteen, or much less than a third part, died.

Three of the patients who recovered, and one of those who died had been at Paris from infancy.

We perceive, however, that in order that these numbers may express the exact truth, it would be necessary that all classes of mechanics and laboring men in Paris, of all ages, should be treated in the same proportion in the hospital; this is not strictly true, a very great number of those who have

been established there for many years being attended by physicians at their own places of abode; but, notwithstanding this fact, it is no less incontestable that the typhoid affection is much more frequent at Paris, in new comers, than in those who have resided there a long time.

ARTICLE III.

SEX.

Sex seems, at first view, to have had a great influence upon the development of the disease under consideration; for of one hundred and thirty-eight persons who were affected by it, thirty-two only, or less than a fourth part, were females, and my observations were collected in wards in which the number of beds assigned to each sex was the same.*

But this influence, if it exist, is without doubt much less in reality, since the number of men who come to Paris is, to all appearance, much greater than that of women. This view is strengthened by the fact, that the mortality was the same in the two sexes, which, doubtless, would not be the case, if the predisposition was greater in one sex than in the other.

* The ward St. John, in which I collected my observations relating to males, contains twenty-four beds; the ward St. Joseph, in which the women were whom I observed, also contained twenty-four beds during the first two years I was engaged in making my observations; in the four following years the number of these beds was reduced to twenty-two; but as the supplementary beds are much more numerous in this ward than in the other, the equality is in some degree re-established, and without doubt I am not far from the truth when I say, that I have made my observations in wards in which the number of beds assigned to each sex was the same. —
LOUIS.

ARTICLE IV.

TRADES.

I have also endeavored to discover whether certain trades have not some influence over the development of the typhoid affection; and, for this purpose, I divided the patients into those whose trade required, and into those whose trade did not require a considerable exertion of strength. The first are in number, seventy-seven, the others fifty-five, a slight difference, less real than apparent, perhaps, under the view we are now taking, inasmuch as the workmen who are engaged in one class of the trades under consideration, are not, probably, so numerous at Paris, as those in the other; an inference which we may draw from the great number of masons and carpenters we see there.

One fact supports the above reflections, viz., as I have remarked in relation to the influence of sex, the mortality did not differ sensibly in the two divisions of patients; in fact, the disease had a fatal termination in eighteen of those whose trades did not cause much fatigue, and in twenty-eight of those of the other class.

ARTICLE V.

CONSTITUTION, MENTAL ANXIETY, EXCESS IN LABOR OR IN THE INDULGENCE OF APPETITE.

The subjects affected with the typhoid disease were generally of a strong constitution; but to know whether strong men were more frequently affected than weak, it would be necessary to know the proportion of each among the new comers to Paris, which we are ignorant of. However, as the

mortality was the same in the strong and the weak, *ceteris paribus*, we may presume that the typhoid affection is not more frequent in the former than in the latter.

The facts which I have collected do not, moreover, lead me to place excess of labor, sorrow and anxiety of any kind, among the causes of the typhoid affection ; since the seventh part only, of the patients who recovered or of those who died, had more or less trouble of mind, or labored excessively for a certain time, and since it is impossible to know whether these persons, who were otherwise in the same circumstances of age and place as the others, would or would not have experienced the typhoid affection, if they had been free from mental trouble, or had been moderate in labor.

A residence in low places, or those inhabited by a very great number of persons, during the night, cannot be reckoned as among the causes we are considering, the eighteenth part only of the subjects being in these circumstances.

The same number of patients used wine to excess from time to time ; but in no case did this excess immediately precede the symptoms of the affection ; or occur even two or three days before their appearance.

The deepest obscurity then hangs over the causes of the affection under consideration. But these causes, whatever they may be, doubtless have some influence upon the mortality and development of the secondary lesions ; this can be said of many serious diseases which manifest themselves, likewise, without any assignable cause, or under the influence of such slight exciting causes that they prove the existence of predisposing causes. However, we must not assign to the latter causes too important a part in the mortality, as some persons

seem to me to have done, who have more particularly fixed their attention upon the cases in which the alteration of the small intestine was slight, and disproportioned to the violence of the symptoms. We have seen, in fact, in the first part of this work, that the number of altered elliptical patches was generally considerable, from twelve to forty in two thirds of the patients whose histories I have collected ; the mean size of these patches was more than an inch, about an inch and a half, and they formed, by their union, a considerable surface, greater in most cases, than that of the inflamed skin in erysipelas of the face. The mesenteric glands, corresponding to the patches, even when the latter were scarcely altered, experienced an analogous change ; the mucous membrane between the patches soon suffered, in most cases, a more or less severe lesion ; if we add, that the altered patches were constantly in contact with materials that had become irritating to them, we must allow that the febrile excitement which was observed in the typhoid affection was as much proportioned to the state of the small intestine, as that which occurs in erysipelas of the face is to the extent of the skin inflamed. If the senses do not appreciate every thing, if there be any thing else in a typhoid affection than what the eye-sight can discover, such is also the case in almost all internal diseases, which, in this respect, are scarcely less mysterious than fevers.

FOURTH PART.



TREATMENT.

PART IV.

TREATMENT.

IT is difficult, with a certain number of exact observations, to describe with precision the symptoms, the progress of a disease, and, in general, to lay clearly before the reader every circumstance that can make it known ; but it is still more so, not to point out the best method of treatment, but to appreciate rigorously the effect, *whatever it may be*, of a therapeutic agent. For it is not sufficient, for this purpose, to estimate the immediate effect of this agent, which it is not so easy to do as we may imagine at first thought, but it is also necessary especially to point out its influence upon the mortality, and upon the slow or rapid progress of the disease. To attain this end, we must compare together a very great number of cases of the same disease and of equal severity, in some of which the disease has been left to itself, whilst in others certain medicines have been used. When we have performed this labor we must study the effect of the same medicine in those patients whose disease is severe, and in those in whom it is slight, in cases in which it has been used in strong or weak doses, at a period remote from, or near the commencement of the disease, alone, or in conjunction with other remedies. This method not only requires much labor, but it supposes a considerable

series of facts, the collection of which would be difficult, especially in the cases of severe diseases, the danger of which always induces us to make new efforts, and will hardly permit us to remain mere spectators. For, it must be well understood that our object should be not to point out nearly the methods which have *appeared* to be more or less successful, but to demonstrate indisputably that such a medicine is useful or injurious, that it is more or less so, according to the manner in which it is employed.

It will be perceived, from this preamble, that I have not pretended to establish, with certainty, the value of the therapeutic agents that have been employed in the course of the typhoid affection. However, I have endeavored that, in this respect, my observations should not be without some benefit to our science, and I will now present in succession the facts that relate to blood-letting, tonics, vesication, &c.

CHAPTER I.

BLOOD-LETTING.

I. IN PATIENTS WHO DIED OF THE TYPHOID AFFECTION.

OF fifty-two patients who died,* thirty-nine were bled a greater or less number of times; the others were not. The

* I have concluded to use, in this part of my work, two observations, which, since they do not possess all the accuracy that is desirable in the description of the organs, have not been employed before, but which do not leave the least doubt in my mind as to the nature of the disease of which the patients died. — LOUIS.

mean duration of the disease was twenty-five days and a half in the former, twenty-eight in the latter ; so that, at first view, venesection would seem to have accelerated the fatal progress of the disease.

It will be objected, undoubtedly, that in many cases in which venesection was employed it was insufficient, or so trifling, that we might subtract the cases of this kind, and place them with those in which it was not employed, that we must do the same with regard to those who were bled at a remote period from the commencement of the disease ; that the mean duration we are considering will not be of value unless we have taken these two circumstances into account. Making our calculation on these principles, and subtracting from the number of patients who were bled, those who were not bled until after the disease had run half its course, or in whom the blood-letting did not amount to twelve ounces, at least, at this period, that is to say, eighteen patients, the mean duration changes in reality a little, and becomes for those who were not bled, or who were bled too late or too little, twenty-six days, and twenty-six days and a quarter for those in opposite circumstances ; so that blood-letting would not seem to have had any influence over the course of the disease, in the cases that now engage our attention.

If we observe that we are not now inquiring, whether the loss of blood *retarded* the fatal period, it must be allowed that I have granted much to the quantity and time of the bleeding, in not taking it into consideration in all cases in which one might suppose that it was employed too late, or too sparingly ; and this the more readily, because in this way the greater number of patients whose disease was rapidly fatal is found among those who were not bled, and, because we may justly doubt whether venesection, at the same time abundant and employed at the

commencement of the first symptoms, would have retarded the fatal period in these cases.

However singular this result may appear, it is, nevertheless, confirmed by a thorough examination of facts. For in five patients who were bled more or less abundantly, by means of the lancet or leeches, or by both united, in the first five days of the disease, its mean duration was twenty-one days; and in seven other patients who were bled in the same manner, and as abundantly, from the sixth to the tenth day, it was twenty-three days. That is to say, the fatal course of the disease was more rapid in these patients than in those who were bled less promptly and less abundantly, and so much the more so as the first loss of blood was nearer the commencement of the disease.

It will be said, perhaps, that if the patients who were abundantly bled in the first ten days of the disease, died sooner than those who were in opposite circumstances, it could only have happened from the intensity of the affection, which was probably more considerable in the former than in the latter. To this I reply, that the severest cases, or rather those in which death occurred most rapidly, do not relate to the subjects in question; and after all, we would ask, in what does the utility of bleeding consist, if when we perform it abundantly and near the commencement of the disease (Obs. 8, 28, 42, &c.), it diminishes neither the danger nor severity of serious diseases, if it cannot retard their fatal termination for some days?

It may also be objected, that bleeding was not the only means employed in the cases under consideration, that some tonics were administered later, and that, perhaps, they paralyzed the influence of the loss of blood. This objection is not supported by facts; for of twenty-one patients who

were very freely bled, and before the disease had run half its course, seven took tonics (two had powerful tonics), and the mean duration of the disease was in them thirty-one days ; so that of these two agents, blood-letting and tonics, employed for the same patients, the latter alone would seem to have been of service. But I shall refer to this point hereafter, and would only remark at present, that blood-letting was not more freely practised in the last seven cases than in the others, and that, consequently, we ought not to attribute to it the prolongation of the mean duration of the disease (Obs. 1, 17, 25, 36, 46, 47, 48).

It will, perhaps, appear superfluous to study the effect of loss of blood upon each of the symptoms, on the day or day after it was prescribed. But the less the results that have been presented agree with the general opinion, the more unwillingness there will be to assent to them, and the more important it is to enter into details, which, though they do not explain the results, become by their unanimity a new reason for admitting them.

Four patients experienced essential, though transient, relief from loss of blood. This relief took place, in one of them, after each of the first two bleedings, which were employed before the seventh day of the disease ; these did not prevent his death on the fourteenth day, after another venesection and three applications of leeches (Obs. 42). Other patients, on the contrary, were more uneasy and suffered more, the day after bleeding was employed, than before. If, on account of the usual course of the disease, we ought not to conclude that bleeding was really injurious in these cases, we are, at least, correct in saying that it did not prevent the progress of the disease (Obs. 21, 26.)

The *pulse* was observed on the day of the bleeding, and on the day after in one half of the cases ; I found it after the loss of blood a little less accelerated than before, but for a short time only, in four patients, who were bled at very different periods of the disease. It preserved, in the others, the character and rapidity which it had at the moment of the venesection, or became more accelerated on the day after it was performed, though one of these patients experienced a little relief after the loss of blood.

Although, as we shall see presently, we cannot attribute, with certainty, the diminution of the rapidity of the pulse, observed in the preceding cases, to the depletion of the circulatory system, we can, nevertheless, say with truth, that the diminution occurred more frequently after bleeding by the lancet than after the application of leeches ; so that if loss of blood is useful in the course of the typhoid affection, and if we could form a rigorous conclusion from the small number of subjects under consideration, the first means will be preferable to the second, the immediate end proposed by blood-letting being the diminution of the rapidity of the pulse.

The *delirium* diminished the day after the bleeding in two cases, and ceased in a third, in which it was slight. In the other cases, the cerebral functions, whatever was their state, did not experience any appreciable change ; or else the delirium commenced the same evening, or the day after bleeding was performed, or it became more violent. This continuance, or increase of the cerebral symptoms took place in a very great number of subjects, however abundant the blood-letting was, or in whatever manner it was performed (Obs. 2, 8, 21, 28, 34). It is also proper to remark, that the improvement observed in the three cases just now mentioned, did not follow the application of leeches, but was a consequence of venesection.

tion; this fact supports what we have already said of the preference to be given to this mode of blood-letting.

The improvement with respect to the *abdomen* was not more marked. The diarrhœa diminished a little, on the day following the bleeding in three cases only, in which it was performed with the lancet (Obs. 5, 54). It continued in the same degree, or increased in the other subjects. The pains increased twenty-four hours after the bleeding in one case (Obs. 25), were stationary in the others, and did not diminish in any. Meteorism manifested itself for the first time, or became more developed, the day after venesection, in two subjects (Obs. 2, 28). It did not diminish in any case, whatever was the mode of blood-letting.

The tongue was evidently more moist the day after the bleeding, than on the day of venesection in one case (Obs. 46).

Thus, favorable changes observed in the state of the pulse, the heat of the skin and the cerebral functions, in consequence of blood-letting, were rare; and the state of the circulation, or of the other functions, more frequently remained the same, or became more serious, under the same circumstances; so that it is not possible for us to affirm that the improvement pointed out was really the result of the blood-letting; and with so much the more reason, as the patients whose pulse was less accelerated after the loss of blood than before, died, for the mean term, on the twenty-third day of the disease, at the same period as those in whom a similar and apparent improvement did not occur after the loss of blood, otherwise the same in respect to the quantity and the time at which it was prescribed.

The observation of the symptoms in those patients who were not bled, or, some time after blood-letting, in those who

were bled a certain quantity, strengthens these doubts. The pulse presented greater or less changes, from the eighth to the twentieth day of the disease in nine patients who were not bled ; and in one of these, who may serve for an example, it beat successively one hundred and eight, one hundred and twelve, and ninety times a minute. The same was the case in five patients, who were bled during the first ten days of the disease, and in two others, who were bled after that period. The *heat of the skin* presented the same alternations of increase and diminution in a fourth part of the cases. Similar variations took place with relation to the *delirium*, in two patients. They were very decided with respect to the *dejections*, in a fourth part of the cases, four, five and six days in succession ; as well in those patients who were bled once or oftener, before or after the loss of blood, at a more or less remote period, as in those from whom blood was not taken in any way, and independently of tonics, which were not administered until a later period. For example, these spontaneous changes in the frequency of the dejections were represented, in one case, from the fifteenth to the eighteenth day of the disease, by the numbers five, ten, three and eight. The tongue, likewise, presented, in analogous circumstances, the alternations of better and worse.

These spontaneous changes justify, what I have heretofore said of the difficulty of appreciating the immediate effect of apparently the most powerful therapeutic agents ; they indicate, it seems to me, that it would be rashness to attribute to blood-letting, at least without exception, the slight improvement that followed it ; and they show the necessity of observing with attention, and daily, the state of the functions, in order that we may know perfectly the progress of the symptoms.

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.

Of eighty-eight of these patients sixty-two were bled; we abstained from blood-letting in the others, either on account of the feebleness of the re-action, or because the patients entered the hospital at too remote a period from the commencement of the disease. The mean duration of the affection was thirty-two days in the former, thirty-one in the latter;* a first result which little favors the action of bleeding.

Doubtless this result would be of no importance, and would absolutely prove nothing, if all the cases of severe typhoid affection were included in the one class, and in the other, all those which were slight. But this is not the case, and, in this respect, the difference between these two classes of facts is not considerable. For in those patients who were *not bled*,

the disease was severe in 15 cases,
slight in 11 “

In individuals who had been *bled*,

it was severe in 42 cases,
slight in 20 “

And its mean duration was from

33 to 28 days in the former,
34 to 29 “ “ latter.

Whence it would seem natural to conclude that the inefficacy of blood-letting was the same, whatever was the degree of the

* I have placed the termination of the disease, or the period of convalescence, at the time when the patients began to eat a little bread. (See note on page 11 of this volume.) — LOUIS.

affection, and that the mean duration of the disease was but little influenced by its degree.

But in this case, as in that of the patients who died, it will, without doubt, be asked, whether the inutility of blood-letting did not arise from the late period at which it was employed, from its being too little, or from its being paralyzed by the action of tonics?

The following facts present themselves with relation to the first and second objections. In seventeen patients whose disease offered severe symptoms, blood-letting was performed twice, between the first and the tenth days, to the degree of ten or twelve ounces each time, and the mean duration of the disease was thirty days, though the first loss of blood took place during the first five days or after. This duration was thirty-two days and three quarters in patients whose first bleeding was performed between the tenth and twentieth days; that is to say, in severe cases in which bleeding was employed during the first ten days, as indicated, it seems that the course of the disease was abridged three days; doubtless, a very slight effect, but one which must appear the more probable, since it does not contradict what we have heretofore pointed out as to the duration of the disease, which hardly varies, in proportion to its degree, in the sum of the cases.

The effect of loss of blood was almost the same in patients whose disease was *slight*; so that in those who were bled between the first and tenth days, the mean duration of the disease was twenty-five days, or three less than in similar cases, in which no kind of bleeding was employed. It was nearly thirty days in those, in whom venesection was not employed for the first time until between the tenth and twentieth days.

Blood-letting, then, when performed during the first ten days of the disease, seems to shorten its course, whatever be

its degree ; and it appears to be more injurious than useful, when performed after this period, in cases in which the disease is slight.

Though the facts, of which these corollaries are only the expression, are too few in number to establish a law, they seem to me worthy of attention, considering the agreement which they present, in the two principal degrees of the disease.

I have also attempted to decide whether the mean duration of the disease did not offer some variety, according to the performance of blood-letting by the lancet, or by leeches, but I have not found any.

With regard to the third objection, the action of tonics, the following facts present themselves. Four patients, who were bled between the first and tenth days, and in whom the disease was severe, took tonics after the fifteenth, twenty-sixth and twenty-eighth days, and the mean duration of the disease was thirty-three days ; precisely the same as it was in analogous cases, in which bleeding was not performed, and longer by three days than it was in the sum of those cases in which the loss of blood was very abundant, during the first ten days of disease. Tonics were also administered to four patients whose disease was severe, and who were not bled until between the tenth and twentieth days, and in them the mean duration of the disease was thirty-eight days ; so that, at first view, we might believe that tonics retarded convalescence. But this conclusion is by no means rigorous, since the eight patients treated with tonics had the disease in a more severe degree than most patients have it, since these tonics were administered at a very remote period from the commencement, near the thirtieth day, or the mean duration of the disease, and since the severity of the symptoms at this

period, did not permit us to hope for an early convalescence, whatever might be the treatment employed.

Tonics were not administered but in one case of the *slight* typhoid affection, in which bleeding was performed during the first ten days, so that I have nothing to say of the complication of the effects of these two therapeutic agents in this degree of the affection.

If, moreover, I have not taken into account some complications in estimating the effects of blood-letting, it is because, as in the cases in which the termination of the disease had been fatal, it seemed to me useless, these complications being connected with the nature of the affection, a more or less necessary consequence of it, and not to be separated from it, when our object is to appreciate its mortality or mean duration.

With regard to the immediate effects, they were not more decided than in the patients who died. Thus, in the third part of those who were bled during the first ten days of the disease, the *pulse* continued the same the day after the operation as before; it was a little more accelerated at the same period, in an equal number of cases; whilst its rapidity diminished somewhat in others, but for a few days only. It presented no appreciable change the day after blood-letting, in cases in which it was not performed until between the tenth and twentieth days; its pulsations were less numerous by five, in two patients; more numerous, on the contrary, in a third, after the second and third bleedings, and in four others after the first. In a small number of patients who were not bled until after the twentieth day, the rapidity of the pulse increased or diminished the day after the operation, in an equal number of cases.

In a very great majority of those who were bled between the first and the tenth days of the disease, the *heat of the skin* remained the same twelve and twenty-four hours after ; it increased in two cases, and was diminished in another. It presented no appreciable change in three-fifths of those who were bled in the following period ; it appeared to me a little diminished in most of the others, but for a short time only ; and it increased, like the quickness of the pulse, after each bleeding, in one patient who was bled three times before the fourteenth day of the disease.

Whether bleeding was performed during the first ten days of the disease, or in the following period, the *delirium*, *somnolency* and *stupor* were not diminished in any case ; in most cases, on the contrary, they were more marked on the day after, than even on the day of, the bleeding. Whence we must, at least, conclude that the antiphlogistic treatment did not prevent the development of these symptoms. In two cases delirium commenced twelve hours after blood-letting.

The *pains of the abdomen* ceased the day after bleeding in three cases. The reverse was the case in two others, in which they began at the same period.

The *meteorism* increased much, in two cases, in the same circumstances. The *dejections* were also very numerous, after the first or second bleeding, in five cases ; the day after an application of leeches to the anus, in another. They diminished after the same mode of blood-letting in a seventh case, and continued the same as before bleeding in the others.

The *tongue* did not present appreciable changes, the day after the bleeding, in one half of the cases ; it was more moist or more dry, in the other half, almost an equal number of times.

In fine, the facts collected on the subject under consideration seem to indicate, 1st, that the immediate effect of blood-letting, or that which could be observed on the day after the bleeding, is nothing, or almost nothing, or is not evident, upon the state of the symptoms of the typhoid affection; 2d, that blood-letting, performed twice, during the first ten days of the disease, may shorten its course a little.*

But did blood-letting save from death some of the patients who recovered? What precedes seems to indicate that it did; for if blood-letting can shorten by three or four days the duration of the disease, it must, without doubt, act by modifying the morbid changes connected with the disease, by arresting, perhaps, those whose course would have been fatal, and by diminishing the chances of secondary lesions, which become in many cases the true causes of death. The comparison of the cases, which terminated favorably or unfavorably, seems to confirm this view.

* To those who have been taught to believe in the all-powerful effect of venesection in relieving disease, these conclusions of our author may seem very disheartening. I do not see how the conclusions can be rejected; but there are two considerations, which, instead of disheartening, ought to encourage us. 1st. Louis, of course, has been obliged to speak of the simple effect of bleeding, except that occasionally he speaks of tonics. There is no reason for our concluding, because venesection does not produce any appreciable effect, that venesection with some other remedy may not do some good. 2d. The quantity of blood taken in the cases of Louis is much less than that which might be taken; and who can tell that larger quantities, and more speedily repeated may not, have some influence? I make these suggestions merely for the purpose of preventing the reader's mind becoming too much biassed by these results. Louis has made one step and a grand one; it remains for those who follow him to give more cases in which venesection shall be performed more boldly, earlier, and combined with other remedies. I ask the reader to *study* carefully the next chapter.— H. I. B.

Of eighty-one patients who experienced *severe* symptoms, and were bled, thirty-nine, or almost half, died.

Of twenty-eight in whom the disease presented the same character, and who were not bled, thirteen, or almost a half, died.

This first result, like many of the preceding, seems to indicate that the loss of blood had no appreciable effect upon the fatality of the disease.

But of the twenty-nine patients who were bled twice, from the first to the tenth day of the disease, twelve only, or about four-tenths, died ; that is to say, the disease treated in this manner was a little less frequently fatal than in the sum of the cases in which bleeding was performed, or in those in which it was entirely abstained from.

Of fifty-two other patients who were bled, some were bled during the first ten days of the disease, to the amount of less than twelve ounces ; the others after this period, and they lost, for the greater number (six-sevenths), from twenty to twenty-four ounces of blood, some a larger quantity. Of the former, in number fourteen, seven, or a half, died, and of the latter, in number thirty-eight, twenty died.

It would seem, then, 1st, that bleeding, performed during the first ten days of the disease, to the amount of twelve ounces, and repeated twice, in *severe* cases, saved the life of some patients ; since of those who were not bled, the number who recovered was not greater than that of those who died but by a fourteenth ; and since of those who were bled in the manner indicated, this excess was a sixth ; 2d, that bleeding performed also at the same period, but only once, and to the amount of less than twelve ounces, was without effect ; 3d, that it was injurious, when performed for the first

time and very freely, between the twentieth and twenty-fifth days.

Thus, whatever view we take of the facts, we see, in blood-letting, a therapeutic agent of some utility, in the course of the typhoid affection, when we employ it properly, and at a period near the commencement of the disease; and this agreement in the results ought to give them a degree of importance to which the small number of facts on which they rest would not seem to entitle them.

Moreover the little effect of blood-letting, in the typhoid affection, ought not to surprise us, since we observe the same to be the case in almost an equal degree in diseases of another kind, and in those which are plainly inflammatory, pneumonia, erysipelas, &c.* I have designedly used the word *plainly*, because in many cases of the typhoid affection, the tendency of the elliptical patches of the small intestine to ulceration prevails; because their inflammation is very slight, as I have remarked above (page 288); and because it might be asked whether blood-letting, performed a little after the commencement of the disease, would have been useful in this variety of the affection, which, moreover, is not accompanied but by a very slight febrile action.

* See my Researches upon the Effect of the Antiphlogistic Treatment, &c. General Archives of Medicine, number for Nov. of this year (1828.) — LOUIS.

† M. Louis published these Researches in a pamphlet, which was re-published last year (1835), with additions drawn from facts collected by the author since his appointment to the office of physician of La Pitié. This last publication has been translated in this city by Dr. Putnam, and to the translation Dr. Jackson has added an Appendix deduced from data to be found in the record books of the Massachusetts General Hospital. The whole work as it stands now is one of the most valuable medical books ever published in America, and any one who may doubt as to the beneficial effects of treatment cannot do better than peruse it. — H. I. B.

CHAPTER II.

TONICS.

I. IN PATIENTS WHO DIED OF THE TYPHOID AFFECTION.

EIGHTEEN patients took tonics ; the mean duration of the disease was thirty-four days and three quarters in them, twenty-six days only in those who were bled under circumstances apparently the most favorable for blood-letting, and who did not take tonics ; so that, at first view, it would seem that the latter exercised a great influence upon the mean duration of the disease, and prolonged the lives of the patients, for a very considerable number of days. But this influence, which in reality is much less than it seems to be, requires, in order to be properly appreciated, that we should enter into some details.

Tonics were not always administered in such a manner that we could, with certainty, estimate their action, under the view before us ; this was the case with all those patients who did not use them until the last days of life, when they were at the worst, and when we could hardly hope to render them any service by any means whatever, or it was the case with those who did not take tonics except during two or three days.

Subtracting these cases from the sum total, and preserving, for the present purpose, those only in which tonics were administered six, eight or more days in succession, there remain thirteen patients, the mean duration of whose disease was thirty-six days and a quarter (Obs. 16, 17, 18, 28, 29, 35, 36, 39, 44, 46, 47, 48) ; that is to say, the mean duration of the disease, in those who took tonics for a longer or shorter time,

was to that of those to whom they were not administered, as thirty-six to twenty-six.

But this proportion is much too considerable, for the twofold reason, that the first term of it is too great, and the second not great enough.

The first term is too great, because three of the patients who took cinchona commenced taking it at an advanced period of the disease, or between the twenty-sixth and thirtieth days; and subtracting these from the thirteen cases mentioned above, the mean duration of the disease is not more than thirty-two days and a half.

The second term of the proportion is too small, because it consists mostly of patients who were carried off too rapidly to have taken tonics; so that taking from the whole of the subjects those who were thus situated, or who died between the eighth and the fifteenth days of the disease, this second term becomes twenty-nine instead of twenty-six, and the mean duration of the disease in those who took tonics, and in those who did not, is thus thirty-one days and a half, and twenty-nine days.

Unless the limited number of the facts upon which my calculations rest have produced fallacious results, we must conclude that tonics were useful in the patients of whom we have spoken, in retarding the fatal period for some days.

But of the patients who took tonics, some were bled, others were not, and in the former, five in number, the mean duration of the disease was thirty-four days and a half, whilst it was only thirty-one days in the latter; that is, tonics, though they did not cease to be generally useful, when administered for a certain length of time, were still more so in patients who were bled than in those who were not.

However probable this result is, I feel more than any one

how much doubt it must leave upon the mind, when we consider the small number of cases upon which it rests.

With relation to the immediate effect of tonics, the following facts present themselves.

The *pulse* was a little more accelerated the day after their administration in one case than it was at the time when they were prescribed. It was less so, on the contrary, in one patient who took weak tonics on the twenty-first day of the disease, which lasted forty days (Obs. 17). It offered no appreciable change in other cases, even when the patients commenced by taking strong tonics, such as a cold infusion of cinchona, and a gum potion, with one or two drachms of the extract of cinchona, or eight, ten and twenty grains of sulphate of quinine.

The *heat of the skin* did not undergo any sensible change in any case after strong or weak tonics; and in one case, in which there was copious sweating when they were administered, this perspiration continued the same in degree (Obs. 16); this will not appear extraordinary to any one who remembers with what obstinacy copious sweats occurring during the convalescence of the typhoid affection resist bitter and stimulating remedies.

The *cerebral symptoms* presented no appreciable change the day after the tonics were first taken. Drowsiness, delirium, groans, cries and spasms continued as before the administration of the new remedy; then, at a more or less remote period, we observed some variations in the symptoms, but such as occur when the patients are left to themselves; so that we cannot, with any probability, attribute them to tonics.

The *meteorism* increased the day following the administration of tonics in one case (Obs. 2), and did not offer any appre-

ciable change in others. The *dejections* were less numerous, under the same circumstances, in two cases (Obs. 35, 48), and this diminution continued from the seventeenth to the twenty-seventh day in one of them. They were very frequent, on the contrary, from the twentieth to the twenty-seventh day of the disease in a third case, which was fatal on the twenty-ninth day (Obs. 29). The dejections, whether of rare or of frequent occurrence in other patients, at the time when tonics were prescribed, offered little or no change afterwards. The redness and dryness of the *tongue* were followed by moisture and an almost natural color of the mucous membrane which covers it, in three cases, on the day after tonics were prescribed; but we cannot, at least with any probability, attribute these changes to tonics, since analogous ones occurred in those who did not take any.

It is proper also to remark, that the state of the pulse was not the same in all the patients at the time when they took tonics; that, while small and feeble in some, it was very full and had a slight double beat in others (Obs. 16, 29, 35, 36, 46), without these differences being occasioned in an appreciable manner, either immediate or remote, by tonics; so that in one case, in which these characters of the pulse occurred, tonics were given from the thirteenth day of the disease until death, which took place at the commencement of the seventh week (Obs. 16).

Let it not be imagined, however, that I make these remarks for the purpose of conveying the idea that it is of little importance in the administration of tonics, to have regard to the character of the pulse; I shall soon show the contrary; but if the pulse was quite full in some of the cases of which we have spoken, it was usually not very rapid, so that the patients were in one of the conditions most favorable for the action of tonics.

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.

Tonics were prescribed to eighteen patients out of fifty-seven whose disease was *severe*. Its mean duration was in them thirty-four days, thirty-four and a half in those who did not take tonics; a difference which we may neglect without any essential error; so that it would result, from this first view, that tonics had no appreciable effect upon the mean duration of the disease.

But seven of the patients we are speaking of took tonics, either for a too short time, or too late, (between the twenty-fifth and the thirtieth days of the disease), for us to count them among those, the duration of whose disease we ought to consider when deciding upon the mean duration; we must, therefore, subtract them, and then this duration is thirty-one days and a half, or less by seventy-two hours, than in the cases in which we confined ourselves to diluents; a slight difference, but worthy of remark, as the cases in which tonics were administered were generally the most severe.

Of the eleven remaining patients eight were bled at various periods of the disease, three were not; and the mean duration was not, in the latter, but thirty days, whilst it was not less severe than in many cases in which blood-letting was ordered.

With relation to the immediate effects of tonics, we have what follows, in cases in which they were prescribed before or after the twentieth day of the disease.

There were three of the first. One of these took tonics from the fifteenth to the twenty-seventh day of the disease, another from the twelfth to the sixteenth, the third from the

fourteenth to the forty-eighth, not constantly however. In the first, when the use of tonics was commenced, the somnolency was moderate, the heat of the skin quite great, the pulse at ninety, the epigastrium free from pain, the tongue a little red; and on the next day the somnolency, the state of the epigastrium and of the tongue were the same, the heat of the skin a little diminished, the pulse a little more accelerated; this acceleration was momentary, so that the pulse was calm on the twenty-fifth day. It fell from a hundred to ninety pulsations in a minute in the second patient, the day after the administration of tonics, and this retrograde course having continued, it was very slow from the twenty-fifth to the thirtieth day of the disease. In the third patient, the tongue became gradually less coated, the pulse preserved its calmness many days in succession (seventy-two pulsations), the heat of the skin and the stupor increased. If tonics seem to have given a favorable direction to the course of the disease in the first two cases, we should say that they produced, in certain respects, an opposite effect in the third, which, however, it is impossible to affirm, since the heat and drowsiness very frequently increase, at this period of the disease, in patients who do not use active remedies. The number of dejections and the size of the abdomen likewise increased, for a short time, on the day when tonics were administered in this case; they continued the same in the others.

The patients to whom tonics were given between the twentieth and thirtieth days of the disease took them for a length of time generally less than they did of whom we have just now spoken. Weak tonics, the cold infusion of cinchona, were administered to one of them during five days, and he took afterwards strong tonics between the twenty-eighth and thirtieth days, and, with the exception of the dejections, which remain-

ed the same in number, all the other symptoms were a little increased during the two days following their administration. Almost the same case occurred in another patient who exchanged weak for strong tonics ; the symptoms were severe, and the pulse, which was almost calm at the time when strong tonics were prescribed, became afterwards more accelerated. Strong tonics appeared to be of great utility in other cases, and in order that the reader may judge for himself, I will now present, briefly as possible, four of the most important facts on the subject under consideration.

FIFTY-FIFTH OBSERVATION.

A WOMAN, æt. 23, who had been at Paris thirteen months, a nurse for six, of a lymphatic and sanguine temperament, a strong constitution, moderate fullness of person, was admitted into the hospital of La Charité, Jan. 28th, 1822. She had at that time been ill for eight days, but had not kept her bed. At the commencement of the disease, a short time after rising in the morning, she had chills, headache, pains in the limbs, dazzling sensation of the eyes, buzzing in the ears ; soon afterwards she had slight deafness, thirst and anorexia. These symptoms continued ; the chills did not cease even when the patient was near the fire ; the dazzling of the eyes made her fall several times ; the dejections were rare ; there was a constant sensation of uneasiness and weight in the abdomen ; however, there was no nausea or vomiting ; there were copious sweats at night from the seventh to the eighth day.

On the 19th, face, a little more red than natural ; eyes, free from pain, as they had been previously ; some buzzing in ears ; slight deafness ; general heaviness and uneasiness ;

no stupor ; movements, rather difficult ; memory not affected ; tongue, dry and somewhat white ; anorexia ; very great thirst ; deglutition, easy ; abdomen, slightly painful and tense ; constipation ; urine, red and scalding ; skin, dry and very hot ; pulse, accelerated, somewhat difficult to count ; cough, increased for some days past, (she had had a slight pulmonary catarrh for three months) ; emaciation, slight.

(Blood-letting $\frac{3}{4}$ viij. ; nitred whey ; barley water, sweetened and acidulated ; gum potion ; two cups of beef tea.)

There was delirium during the night. On the 20th, in the morning, a short time after the visit, it continued ; the patient denied having had leeches to the anus, which had just been applied, and assured us that she felt no pain any where. The sinking was much more marked than on the preceding day ; the face more red and purple ; the deafness greater ; the pulse, sunken, frequent and small. The blood drawn on the day previous was neither buffed nor cupped.

(Fifteen leeches to anus ; sweetened acidulated whey ; gum potion ; emollient enema ; fomentation to abdomen.)

The loss of blood was very considerable, and the delirium continued. On the 21st, the patient again denied having had leeches applied ; her face was of a bright red color, with a slight expression of astonishment ; deafness, greater ; meteorism, slight ; tongue, red and moist ; intense thirst, and, for the first time, rose-colored, lenticular spots were observed upon the abdomen.

From that time to Feb. 2d, the twenty-third day of the disease, the period at which the tonics were prescribed, the following facts occurred. The delirium continued for five days with the same character, together with a little somnolency and stupor, after which the patient enjoyed, though in a slight degree, the use of her intellect. There was some

subsultus tendinum from the 26th to the 27th, and the deafness continually increased until the 29th, so as to be complete on that day, after which its degree was very variable. The tongue was dry, often blackish until Feb. 2d; almost no thirst; the dejections, liquid, frequent and involuntary. The meteorism increased gradually, then became stationary, and began to diminish on the 30th. The pulse was always much accelerated, a hundred and sixteen, a hundred and twenty, a hundred and ten, the heat of the skin great, and the rose-colored, lenticular spots, which extended to the chest, while they became every day more numerous, were not entirely effaced on the 30th. Some blisters, applied to the legs on the 22d, had a bad aspect on the 27th, and from that time were dressed with the powder of cinchona, and looked much better on the 28th. The cough was slight; there was a sonorous râle generally over the chest.

On Feb. 2d, tongue, a little dry; diarrhœa, slight; dejections, still fætid; meteorism; pulse, a little accelerated; the patient took little interest in what was going on about her, but asked, however, whether she had fever; her face was changed; her deafness a little less than on the preceding day; her skin, dry.

(Sweetened barley water, acidulated with muriatic acid, ten drops; gum potion with extract of cinchona \mathfrak{z} i., and syrup of cinchona \mathfrak{z} i.)

The weakness was less on the next day; on the 4th, the tongue was clean, moist, and a little red at its edges; the dejections as on the preceding day; the abdomen still a little meteorised; the acceleration of the pulse the same; the skin, covered with sudamina; the respiratory murmur without râle; the face, smiling; for the first time, the patient complained of pains in the legs and of being hungry.

(Gum potion with extract of cinchona \mathfrak{z} iss., and syrup of cinchona \mathfrak{z} i.)

The improvement from this time was progressive and uninterrupted ; dejections occurred daily ; the pulse was a little accelerated for a certain time ; the digestion was always easy and regular, and the eighth of the common house allowance was given on the 7th. The desquamation of the epidermis was universal on the 14th ; and, from the fortieth to the fiftieth day of the disease, there was copious sweating, which resisted the infusion of cinchona and that of mint in conjunction with some drops of ether. It had not entirely ceased on the fifty-seventh day, when the patient left the hospital, perfectly well in other respects.

Without dwelling upon the symptoms, the character of which can leave us in no doubt as to that of the disease, I would remark that at the period when tonics were administered, these symptoms had already lost much of their intensity, so that, for this reason, it is not possible to suppose that without tonics the disease would have terminated fatally ; we ought only to presume, that, owing to the great weakness which existed when tonics were prescribed, the convalescence without their aid would have been later and more slow, and that they were useful by shortening it. I do not affirm that this was really the case, since a rapid improvement sometimes occurs in the typhoid affection, without the employment of tonics ; but it appears to me to be very probable that it was as I have stated. With relation to the blisters, whose aspect was so soon changed by the application of powdered cinchona, the cause of this improvement cannot be doubtful.

Let us pass to another fact much more conclusive.

FIFTY-SIXTH OBSERVATION.

A YOUNG man, a vintner, æt. 17, of a large, well-developed person, of a strong constitution, who had been at Paris two years, where he had always enjoyed good health, was admitted to the hospital of La Charité, Sept. 17th, 1823, and had at that time been ill for eight days. The disease had commenced with pains of the head, great heat of the skin, thirst and anorexia; these symptoms continued during the last four days; the headache had diminished, diarrhœa had followed constipation; chills occurred on the fifth day, and sweats during the last two nights. Leeches were applied to the anus the day before the patient entered the hospital; he had drunk every day a little wine or wine and water, without being troubled by it. No other therapeutic agent had been employed.

On the 17th, a short time after the blood-letting prescribed at the time of the visit, the face was purple, there was somnolency, and the exercise of the intellect was difficult; the patient sometimes seemed to forget to answer, though his memory appeared perfect; he was not very feeble, and he walked alone to the hospital without experiencing any dazzling of the eyes; his tongue was dry at the centre, a little red at the edges, somewhat thickened and deeply furrowed at the centre, lengthwise; deglutition, easy; abdomen, well shaped, without pain; the pulse at eighty; skin, quite hot; respiration, moderately accelerated; respiratory murmur, natural. There were two liquid dejections during the day.

(Venesection \bar{z} viij. ; whey ; lemonade.)

On the next day the pulse was not quite so large and full ;

the epigastrium and iliac regions were sensible to pressure ; other symptoms as on the preceding day.

(Venesection to $\frac{3}{4}$ viij.)

During the day there was a slight epistaxis, and the sleep at night was troubled. On the 19th, there was considerable debility ; the answers of patient were short, but correct ; the pulse was at seventy-six ; skin, moderately hot ; the patient seemed absorbed in thought. The blood drawn was neither buffed nor cupped.

From that time until Oct. 9th, the following circumstances took place ; the thirst was slight ; tongue, clean, moist or clammy until the 7th, a little red at edges, and dry at centre afterwards ; abdomen, well-shaped, free from pain, except on Oct. 8th ; dejections daily until Sept. 29th, afterwards two a day. The pulse, usually but little accelerated, was at ninety-six, Oct. 8th ; the skin was moderately hot, except from the 5th to the 8th day of this month ; the sweats rare and slight in degree ; I did not observe rose-colored, lenticular spots at any time. There was no delirium ; the answers were slow, but correct ; epistaxis occurred many times. This treatment was limited to the use of demulcents, and the patient, having a little appetite on Sept. 30th, ate on that day a half rice-fritter.

On Oct. 9th, the tongue was red at edges and dry in centre, as on the preceding day ; the thirst, moderate ; the dejections a little more frequent than usual ; the abdomen, meteorised ; the pulse was moderately large, at eighty-six ; the respiration, slightly accelerated, at twenty-two. For the first time, the patient was delirious during the night and walked about in the wards. He answered only in monosyllables, seemed as though he had lost his faculties, or rather he had the at-

titude of a man exhausted by fatigue, who wishes to sleep.

(Blisters to legs ; sweetened infusion of cinchona ; potion with wine of cinchona, mint water āā ʒ ij. and syrup of cinchona ʒ i. ; aromatic fomentations ; camphorated enema with cinchona.)

The delirium and drowsiness continued ; the patient again got out of bed during the night and had involuntary dejections. On the 10th ; same drowsiness ; tongue red and moist ; pulse, more feeble than on the preceding day ; respiration at thirteen.

(Same prescription.)

This prescription was continued for seven days after, during which the following changes occurred. The tongue was not more red on the 11th, and was always moist ; the meteorism continued until the 13th ; the dejections were less frequent ; the pulse became gradually less feeble and less accelerated ; the delirium ceased ; the face was less pale, and was perfectly natural on the 17th, or the day before we discontinued strong tonics. On the 22d, the patient took the eighth of the house allowance, and the half on the 28th. He did not, however, leave the hospital until the end of the following month, having committed, on Oct. 20th, an excess, which retarded his convalescence.

There were no night sweats, and the blisters dried with difficulty.

If this observation be remarkable for the improvement which followed the administration of tonics, it is not less so for the apparent mildness of the disease, the slowness of its course, its stationary condition, and even its retrograde appearance, at the period when the patient had a little appetite,

and especially for the occurrence of new symptoms, delirium, somnolency, meteorism, increase of diarrhœa and extreme weakness on the day before tonics were administered. These symptoms had sensibly diminished on the second day after they were prescribed, and they disappeared promptly, and we may believe that the active treatment pursued, if it had not been clearly indicated, would have aggravated all the symptoms and retarded the convalescence. It would be the more difficult to throw doubt upon the efficacy of tonics in this case, in consequence of the fact, that the symptoms, far from being improved when these medicines were prescribed, as in the preceding observation, became, as I have just now said, more violent, because new and very severe symptoms were added to the first, and the disease manifested a fatal tendency. It would be saying too much were I to assert, that death would have been the consequence, if tonics had not been administered; but, it seems to me, it would not be more reasonable to deny their efficacy. The limit of this efficacy is uncertain, but the efficacy itself does not appear to me doubtful.

Let us observe, besides, how precise the indication was, how much the state of the patient seemed to call for the employment of tonics, at the time they were prescribed. The feebleness was extreme; the patient, as if his faculties were lost, or like a man exhausted by fatigue; the pulse, moderately accelerated; the respiration, calm; the delirium did not contra-indicate tonics, since we meet with it as well when there is a sunken state of the system, as when there is excitement of it; we must, then, in similar circumstances, follow the course we have observed in this case, as we must avoid it in circumstances very different or opposite.

With relation to the blisters ordered at the same time with tonics, I will only observe, that this union of remedies ought

not to create any doubt as to which of them we should attribute the improvement which took place in the state of the patient, since blisters, applied alone, in the typhoid affection, have never been followed by a similar effect.

FIFTY-SEVENTH OBSERVATION.

A YOUNG man, a baker, æt. 22, of medium size, broad shoulders, strong constitution, lymphatic and nervous temperament, had been ill for six days, when he came to the hospital of La Charité, Aug. 16th, 1822. He was of sober habits; had been at Paris for two years and a half without having been ill, and, with the exception of the hours of labor, had lived in the same manner as he had at Lyons, where he had formerly pursued the same business. His disease commenced with a slight chill, pains of the head, pains, as from bruises, in limbs, loins, epigastrium and some parts of the abdomen, thirst, anorexia; the pains of the head had become gradually more intense; the chills had returned, at least once a day, at irregular hours; the anorexia, thirst, and pains of abdomen continued; the patient had attempted, but without success, to resume his labors four days after the disease commenced; his sleep had been calm, feebleness moderate, drowsiness infrequent, dejections almost regular.

On the 17th, calmness; headache; pains in the loins; slight weakness; sleep, quiet at night; tongue, a little red at edges, blackish behind; thirst, moderate; anorexia; abdomen, supple, at times painful at different points; constipation; pulse, a little irregular, rather full, at sixty; heat of skin, comfortable, universal moisture; respiration, a little accelerated,

at eighteen, sometimes unequal. The patient only complained of a very nauseous taste in the mouth.

(Sweetened barley water; emollient enema; three half rice-fritters.)

On the next day, the patient complained of having awaked many times with affright, also of increased weakness, and of great tendency to sleep.

(Same prescription.)

There were four dejections during the day on the 18th, one on the next day, and on the 20th a laxative of manna and rhubarb was prescribed.

This was followed by some colic pains and seven dejections, the first of which were composed, in part, of hard substances. On the 21st, the tongue was of a yellowish white color; the bad taste in mouth still the same; the abdomen, soft, free from pain; the pulse, irregular, at fifty-three, sufficiently large, as before the laxative; moderate debility; color of skin, natural.

From the 22d to the 24th the tongue was whitish; the thirst, moderate; pains in abdomen at intervals; dejections, pultaceous, three or four a day; pulse, rather large, with a double beat, at sixty-seven; cough, very rare; dreams, infrequent; expression of prostration and discontent.

(Sweetened barley water; two cups of camomile tea.)

From the 24th to the 30th, the tongue, at first red and moist, was more or less hard, and presented a longitudinal furrow at its centre; the thirst was usually great; the dejections continued to become more frequent until the 27th, so as to be twenty during the day; afterwards they were reduced to seven or eight. The abdomen was meteorised on the 26th, and almost always was free from pain; the pulse, was from sixty-nine to eighty, usually with a double beat, rather large

than contracted ; the skin was almost always of a moderate, agreeable temperature, free from sweat, and from the 26th to the 28th I observed some rose-colored, lenticular spots, and some sudamina upon the abdomen. The drowsiness made rapid progress, and was not interrupted from the 28th to the 29th, but by a little delirium. The prostration followed the same course, and there was on the 29th a little deafness for the first time. Blisters to the legs were ordered on this day.

On the 30th, at the time of visit, the tongue was dry and moist in different points ; abdomen flat, or even retracted, and free from pain ; the pulse had a slight double beat, at seventy-eight ; heat of skin, moderate ; lenticular spots as on preceding day ; respiration, but little accelerated ; respiratory murmur, feeble, without râle ; constant drowsiness ; complexion, of a leaden hue ; stupor ; posture, as of one indifferent about his appearance ; deafness a little less than on the preceding day.

(Sweetened barley water acidulated with muriatic acid ; cold infusion of cinchona ; gum potion with syrup of cinchona $\frac{3}{4}$ i. and sulphate of quinine grs. xx. ; aromatic fomentations.)

On the next day, the 31st, the twenty-first day of the disease, the tongue was moist, red at edges, yellow and villous in centre ; thirst, slight ; dejections, less numerous than on preceding day ; abdomen, still retracted, and, at times, painful ; pulse, a little sunken, small, at seventy-five ; no delirium ; the patient was afraid that he should die, and his face was still more altered than on the preceding day.

(Same prescription.)

But from Sept. 1st, after using tonics for two days, the improvement was extremely obvious ; the face became calm, cheerful, only with a slight expression of fatigue ; the strength

returned rapidly, and the patient walked on the 10th in the garden of the hospital. The tongue was a little dry and somewhat brown on the 2d and 3d ; the dejections were of daily occurrence ; the abdomen free from pain and well shaped ; the pulse remained for four days at seventy-two, and was at fifty-five on 9th. There were night sweats from the 2d to the 11th, and the heat of the skin was seldom more than natural.

The patient took strong tonics for three days, and was then restricted to the cold infusion of cinchona. He ate the eighth part of the house allowance, on the seventh day of the treatment by tonics, and left the hospital on the thirty-fifth day of the disease, very well, having had, consequently, a very rapid convalescence.

Under the two-fold relation of the character of the symptoms, and their prompt disappearance in consequence of tonics, this observation is no less remarkable than the preceding. The affection commences in a decided manner ; pains indicate its seat to be in the abdomen ; the dejections remain almost regular for the first eight days ; the pulse is calm on the tenth day, and we administer a laxative, which, not producing a favorable effect, indicates that the affection is not a simple gastric embarrassment. Though the symptoms still present nothing very remarkable for some days, they at last manifest themselves with energy ; on the twentieth day of the disease, when strong tonics are prescribed, these symptoms are in all their vigor, the somnolency and prostration are considerable, the complexion livid, the pulse slightly accelerated, the posture careless, the hearing rather difficult, &c. On the next day, if the pulse appears a little more contracted, it is already less frequent than on the preceding day, the exercise of the mind is more free, and, on the following day, the improvement is

general, very marked, and the patient seems as if he had a new life ; his strength returns rapidly, and, on the seventh day of the employment of tonics, he eats the eighth of the house allowance. Certainly, it is impossible to avoid seeing the effect of tonics in this improvement, less because it occurred immediately after their use, as it were, but because the symptoms had continued to increase until the tonics were ordered.

Moreover, the indication was neither less precise nor less evident than in the preceding observation ; debility was the chief symptom, the pulse was a little accelerated, the respiration almost calm ; no means capable of counteracting or diminishing the effect of tonics were employed ; and this is a new reason for believing that blisters could not claim any part in the improvement which followed their employment in the last observation.

I shall only add one word more with relation to the course of the disease and the obscurity of its character during the first fifteen days, to show that it was not impossible to recognise, or at least strongly suspect its nature, at the time the patient was admitted into the hospital. The dejections were then in reality almost regular ; there had been no copious sweats capable of explaining the weakness ; we could neither account for it by gastric symptoms, nor by the violence of fever which did not exist ; it was, then, neither a gastritis, nor gastric nor intestinal embarrassment ; neither was it a painful lassitude ; nothing resembled it less. And if we remark that there were a little somnolency and irregularity in the pulse, that the patient was in circumstances favorable for the development of the typhoid affection, we must allow that all suspicions must rest upon this disease. It is true, the pulse was calm ten days after the commencement of the affection, but diarrhœa had already begun, and we could only ex-

plain the debility by the special alteration of the elliptical patches of the small intestine, or by the cause to which we must actually refer the development of this alteration.

FIFTY-EIGHTH OBSERVATION.

A TURNER, æt. 17½, not of a very strong constitution, who had been living at Paris for six months, had been ill for fifteen days, when he was admitted into the hospital of La Charité, Nov. 18th, 1826. During the first eight days he had had debility, giddiness, diminution of strength, thirst, a little less appetite than commonly, and, on the fourth day, colic and slight diarrhœa. During the following days patient had chills daily when he went to bed, tendency to sleep, buzzing in the ears, anorexia, great thirst, continuation of the diarrhœa. His whole nourishment had been some broths and fruits.

On the 19th, the appearance of the face was sufficiently natural, with the exception of a purplish hue of the lips; slight somnolency; headache; moderate weakness; answers, correct; some buzzing in ears; pains in limbs and loins; thirst, great; anorexia; tongue, whitish at centre, natural at edges; pharynx, red and very moist, without pain; deglutition, easy; abdomen, well shaped; pain at epigastrium and iliac fossæ, increased by pressure; left hypochondrium, supple, not distended; heat of skin, moderate; pulse, at seventy-eight, without any particular character; no rose-colored, lenticular spots; sonorous râle on right side of chest, behind, without cough. The patient complained of giddiness and pains in limbs, though seldom in the legs.

(Rice water sweetened, twice ; flaxseed enema ; emollient fomentation ; diet.)

From that time until the 26th, the tongue was almost always in a natural state ; the thirst increased ; there was, at intervals, pain in throat ; the deglutition was sometimes difficult ; the dejections, three or four in number, during the twenty-four hours, were at times involuntary, of which the patient himself complained ; the abdomen continued well shaped, and was free from pain after the 23d. The pulse varied from seventy to seventy-eight and sixty-four, and I observed some rose-colored, lenticular spots on the 24th. The respiration, which was sometimes suspiratory, gradually became a little more accelerated, twenty-eight times in a minute, while patient was asleep on the 24th. There was a little loquacity in the night of the 19th to 20th, and in the night following. The patient complained of the bad state of his health on the 25th, and, at times, he was apprehensive that he should die ; his face was pale, and had the expression of profound debility, and the deafness was extreme from the 23d to the 24th. The same drinks were continued, and we gave him a little beef tea during the last days.

On the 26th, the face was extremely pale, like that of a dead man, as it were ; external appearance of the most excessive weakness ; the patient could hardly carry his arm to the edge of the bed ; the deafness was complete, we could not make him hear ; his tongue was natural ; abdomen, without pain ; pulse, calm ; heat of skin, comfortable, almost natural. There had been three involuntary dejections on the preceding day.

(Sweetened infusion of cinchona ; gum potion with extract of cinchona \mathfrak{z} i. and syrup of cinchona \mathfrak{z} i. ; aromatic fomentation ; camphorated enema of cinchona, twice.)

On the next day, the 27th, the face was already better, less like that of a corpse, the lips of a vermilion color, the speech a little more free, the pulse at seventy-two instead of sixty-four, as it was on the preceding day ; the dejections the same in number as on the 26th.

The same potion was continued, increasing the dose of the extract of cinchona, which was raised to two drachms on the 29th, reduced to one on the second day after, and omitted after two days more, as were, likewise, the fomentations and enemata. The improvement went on rapidly ; the face had an excellent appearance on the 29th, and was truly animated during the following days. The patient supported himself easily upon his elbows on the 30th, which he had not done for a very long time ; his appetite was very sharp, but on account of the continuance of his extreme weakness, much discretion in the prescription of the food was observed, so that he still had no more than the eighth of the house allowance on the 5th of Nov.

The blisters, which were ordered four days before the administration of the tonics, quickly produced ulceration of the skin upon which they were applied, and were not entirely cicatrized on 7th of Dec., which prolonged very much the continuance of the patient at the hospital. There were no sweats during the convalescence.

In this, as in the preceding observations, the characteristic symptoms manifested themselves slowly, the accidental were very slight for a considerable number of days, and had attained their highest degree of development at the period when tonics were administered. At that time, in fact, the paleness of the patient was so great and the debility so extreme, that he resembled rather a corpse than a living being. These symptoms, which had made constant progress until that mo-

ment, were already less on the day after the first administration of tonics, and the improvement was so rapid, that the influence of the treatment was still more indisputable in this case than in the subject of the last observation.

This fact and the three preceding appear to me to be of great interest, not only because they unanswerably prove the utility of tonics, but especially because they indicate with precision the circumstances most favorable for their action. This action was, in fact, less evident or less rapid in the first case than in the second, in this than in the third, in the third than in the last; the debility, which was considerable in all the patients, continually increased from the first case to the second, from the second to the third, from the third to the fourth; whilst the acceleration of the pulse and the other symptoms, the amount of the diarrhœa and the meteorism observed an opposite order, the pulse being more accelerated in the first patient than in the others, especially in the fourth, in whom it was calm, on the day when tonics were commenced, &c. The circumstances, then, most favorable for the action of tonics are, as I have already indicated, a calm pulse, afterwards the less accelerated the better, a slight diarrhœa, and absence of meteorism. When these conditions exist, the more considerable the debility is, so much the more easy it seems to overcome it.

On this subject, moreover, as on that of blood-letting, it is natural to ask, whether tonics have done more than shorten the duration of the disease, whether they have saved from death any of the patients whose histories I have presented. Though the affirmative is not perfectly certain, it yet appears to me very probable, considering the rapid progress of the disease, in three of these individuals, until the time when tonics were administered, the promptness with which the symptoms

of the disease disappeared after them, the danger of all acute affections in weak persons, the rapid ulcerations of the wound from blisters in one case (Obs. 58), the progress of which ulcerations is generally proportionate to that of the alteration of the elliptical patches of the small intestine. On this subject conjectures are allowable, it is even our duty to make them to a certain extent, since, as they are not intended for certainties they can do no injury, and they may be useful by inducing us to make new researches upon a subject so important, and which, to be thoroughly examined, requires so many materials.

Weak tonics were exclusively administered to some patients from the twentieth to the thirtieth day of the disease, without any appreciable effect upon its course, since the slight changes, which occurred during their use, could very well be referred to the number of those which take place spontaneously, or when the course of the disease has not been influenced by any active medicine. These weak tonics, which consisted of the cold infusion of cinchona and of enemata of a decoction of the same bark, did not produce increase of heat in any case, nor the least of those accidents, which, at the present day, are so much feared, as soon as we vary in our treatment from the usual course of diluents and sugar and water.

CHAPTER III.

BLISTERS.

I. IN PATIENTS WHO DIED OF THE TYPHOID AFFECTION.

THE greater part of the patients had blisters applied to the lower extremities ; their use was abstained from in others on account of the absence or little development of the cerebral symptoms ; and subtracting from the number of the former those who were at the point of death when blisters were applied, we find that the mean duration of the disease was the same in both classes of patients, or twenty-six days.

With respect to the immediate effect of blisters, I have examined one half of the cases in which they were applied, and these effects were as follows.

The general heat diminished for a very short time, the day after their application, in a fourth part of the cases ; it appeared to me, on the contrary, increased in the same number of patients, and in the others presented no other appreciable change. But as variations of temperature are not rare in patients who have not been actively treated, or during the employment of the same therapeutic agent, it is doubtful whether the momentary variations of temperature were the effect of blisters. Moreover, how could blisters produce immediate appreciable effects, when applied at a period at which the specific lesion of the small intestine is never, or almost never, the only one ? How slight is the inflammation which they produce compared with the extent of the alteration of organs more or less deeply situated !

The immediate effect of blisters upon the state of the circulation was not more evident in the cases in which I examined it (twenty-seven). The *pulse* was a little less accelerated the day after, than on the day of, the application of blisters in six cases, a little more so, on the contrary, in the same number of patients ; in the others there was no appreciable difference, whatever was the period at which they were applied. The doubts which we previously raised, as to the influence of blisters upon the heat of the skin are of still greater force on the present point ; for how could we, in fact, attribute to an exciting cause the diminished slowness of the pulse, when, however, the important symptoms of the disease are becoming every day more serious !

The *cerebral functions* presented no appreciable change in the great majority, or in nearly two thirds of the cases, nineteen. Of ten others, two relate to patients whose delirium and restlessness ceased the day after the application of blisters, three to patients in whom these symptoms were more severe, and in three others the somnolency and debility made continual progress, as we observe with respect to so many other symptoms, whatever means we employ against them.

The examination of the *digestive functions* has led me to the same results ; so that whatever view we take of the action of blisters, we cannot find that they have any sensible effect, either upon the duration of the disease or upon the course of the symptoms.

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.

In order that I might know the influence of blisters upon the course of the disease, I have first compared together those who, having been bled, did not take tonics, and those for whom these last were ordered.

In the cases in which blood-letting and blisters were prescribed, the mean duration of the disease was thirty-five days; it was only thirty in those in which we confined ourselves to blood-letting; so that, at first view, blisters seem to have been very injurious. But this conclusion is by no means a rigorous one, since the disease was generally more severe in the former patients than in the latter.

In those who took tonics (all of them more or less severely affected), the difference was similar, but much less, one day only; so that if we can form a general conclusion from a very small number of facts, it will be that blisters are injurious, which conclusion, moreover, will be the less surprising, if we remember that, without taking into consideration the more or less serious alterations of the skin which blisters produce, they are themselves a disease, though a slight one, added to one, and almost always to many other diseases, and it would be difficult to conceive how they could accelerate their termination.

The immediate effects of blisters were as follows.

The *heat of the skin* was observed with care on the day of, and the day after, the application of blisters, in twenty of thirty-two cases, and I found it a little altered only in two patients, less than on the preceding day in one, increased in the other.

The *pulse* was observed in the same manner in all the cases; the number of its pulsations was increased ten in two patients, six in a third, the day after the application of blisters; it continued the same in the others, or presented only slight differences, (two or three pulsations), as we find at all periods of the disease in most patients, when we observe them from one day to another, even when we confine ourselves to

diluents, differences which ought to be neglected, because we cannot possibly know their value.

The *delirium* disappeared on the day after the application of blisters, in one case in which it had existed for four days in a moderate degree; the delirium, somnolency and sinking increased in five others. The state of the cerebral functions was stationary in the remainder of the cases.

Vomiting occurred in one case on the day after the application of blisters, and continued eight days. This was a symptom of a gastritis, for we surely could not attribute it to the action of the blisters.

There was nothing remarkable with relation to the *diarrhœa* and the state of the *tongue*.

The slight changes observed in the temperature and in the cerebral functions occurred in a greater proportion in those patients to whom blisters were not applied, whence it results, that they had no immediate appreciable effect in those who recovered, and that, perhaps, they retarded a little the convalescence of the patients.

If such be really the result of experience, blisters ought to be banished from the treatment of the typhoid affection, and with the more reason, as every one knows their bad effects, the loss of substance which they occasion, and the slowness with which their wounds heal in many cases. While they are of no utility towards the re-establishment of the cerebral functions, they concur, however, in maintaining or augmenting the febrile action and its troublesome consequences; their effect, as a derivative means for many of the inflammations which manifest themselves in the course of the typhoid affection, is more than doubtful, after what we have just seen above, an inflammation of a small extent in an organ almost inevitably bringing one or many others in its train.

So that whatever view we take of blisters we find only inconveniences, without any advantages to counterbalance them. However, I know, more than any one, that the reform in question cannot be made without the aid of time, when a very great number of facts analyzed with rigor shall have clearly decided the true value of blisters and of the theory of derivation, considered in relation to inflammation, and it is especially from the hope of exciting attention to this point, that I have for a moment dwelt upon it.

Tonics, applied to the surface of blisters of a bad aspect rapidly changed their color, produced their cicatrization, and afforded a new proof of the advantages which we must expect from the use of bitter medicines in certain internal inflammations, at an advanced period of many of them, and, in particular, in the typhoid affection, in the circumstances indicated above, since there is very generally a proportion between the state of the blisters and that of the elliptical patches of the ileum, the latter being more extensively ulcerated as the blisters have a worse aspect and greater tendency to ulceration.

CHAPTER IV.

ICE UPON THE HEAD.

I. IN PATIENTS WHO DIED OF THE TYPHOID AFFECTION.

FROM one to eight pounds of ice were applied to the head, usually at many different times, in ten patients whose disease terminated fatally (Obs. 2, 7, 9, 14, 18, 24, 30, 33, 35, 53),

whose delirium had resisted various therapeutic agents (blisters, sinapisms, leeches to the neck), and, with the exception of three cases, no appreciable change in the state of the cerebral symptoms followed its application.

The drowsiness was a little less after the application of ice, in one of these cases (Obs. 14) ; there was a little more tranquillity, during the following night in another (Obs. 53) ; and the third patient, so long as there was ice upon his head, answered yes and no, which he had not done before, and ceased doing after the ice was entirely melted (Obs. 7).

It is proper, however, to remark that in seven of these patients the employment of ice was combined with the application of leeches, sinapisms, blisters, and even with a general blood-letting in some ; means which, according to all theories, ought to have more or less success, and the inutility of which tends at least to prove that, at a certain period, diseases pursue their course with an obstinacy over which our therapeutic agents have but an extremely limited influence.

II. IN PATIENTS WHO RECOVERED FROM THE TYPHOID AFFECTION.

Two of the patients who recovered had ice upon the head. The delirium, which had existed for six days in one of them, diminished on the next day ; this diminution would, perhaps, have likewise occurred if ice had not been applied, as the delirium had attained, at this period, the most common limit of its duration. There was no improvement in another patient, notwithstanding the addition to the ice of derivatives and leeches to the neck.

CHAPTER V.

GENERAL TREATMENT OF THE TYPHOID AFFECTION.

AFTER having examined, analytically, the value of the principal therapeutic agents which custom has devoted to the treatment of the typhoid affection, it will not be useless, I think, to take a rapid survey of the employment of blood-letting and tonics, and remind the reader of some other means which are called for by the symptoms and well-determined nature of the disease, and to explain the method to be pursued in its different degrees, and at the various periods of its course.

As blood-letting was useful to the patients whose histories I have collected, during the acute period of the disease, it must appear proper to have recourse to it at that period, proportioning it to the intensity of the febrile action. When this is feeble, venesection to twelve ounces is sufficient ; in the contrary case, it must be repeated twice during the first ten or twelve days. It has not been demonstrated that a greater number of bleedings would be favorable to the issue or the course of the disease, and it would be vain to multiply them for the purpose of destroying the febrile action by their influence ; ten bleedings would not be sufficient for that purpose, since experience has shown that the typhoid affection, well characterized, is not susceptible of being cut short at once, which, moreover, is not the less true, to all appearances, of pneumonia and other inflammatory diseases. We should prefer general to local bleeding, the utility of the latter being not so well demonstrated, even in the affections of organs, which are superficially situated.

After the twentieth day in severe cases, and before that period in those in which the disease is mild, and the febrile action slight, blood-letting appears to retard rather than to accelerate the convalescence ; we must, then, abstain from it at that period, unless, however, the symptoms of the disease have been feeble for a long time, and have assumed a certain degree of violence a short time previously, and unless the color of the skin and the preservation of the fullness of the flesh indicate a moderate loss of strength ; for the consideration of the strength of the patient ought always to be present to the mind of the physician, since the severity and danger of acute affections are proportionate to the actual debility of the patients, and since this debility favors the development of secondary lesions.

The action of blood-letting ought to be favored by other means, whose influence, though not demonstrable in so rigorous a manner, ought not, however, to be questioned, such as copious drinking, emollient enemata, and a temperature but little elevated.

On account of the nature and seat of the disease, drinks cannot, doubtless, be too copious, and we cannot even assign limits to them in this respect, except those which are indicated by the aversion of the stomach ; for this reason, it is necessary to render the drinks agreeable and mild, and to prefer to all others the solution of a syrup, acidulated more or less, according to the taste of the patients. Two or three quarts of liquid in the twenty-four hours ought to be considered as a medium quantity. But if the patients wish, or can drink more than this quantity, we must increase it. The abundance of the drinks ought to be, moreover, in proportion to the intensity of the febrile action, which is itself generally in proportion to the

extent and seriousness of the specific lesion of the small intestine.

Doubtless, the drinks introduced into the stomach do not all of them reach the ileum, to which the affection of the elliptical patches is usually found limited ; but, by their mixture with the liquid contents of the stomach and jejunum, they may mitigate the action of these contents and act directly and indirectly upon the patches. In external diseases we are enabled to calm inflammatory symptoms by emollient cataplasms or baths ; we ought to aim at the same end, by similar means, in the treatment of the disease under consideration.*

Unless there is constipation, enemata are, without doubt, most generally useless in the early period of the affection, since the mucous membrane of the large intestine is only altered consecutively, at a period more or less remote from the commencement of the disease ; but as this period cannot be determined, and as an emollient enema will not cause inconvenience, it is well to give one, made of flaxseed, during the

* The English have, of late, revived the use of the carbonic acid, which was formerly of repute in the treatment of the typhoid affection. Nine patients, affected with this disease, have been very recently treated by M. Chomel in the wards of La Charité with gaseous water in enemata and in drinks. All of them, two of whom experienced severe symptoms, (prolonged somnolency, delirium and meteorism), recovered. Another patient, treated in the same manner, in the city, by the same physician, died. If this first experiment cannot decide the question of the utility or inutility of the carbonic acid, it may induce us to administer it whenever the occasion presents itself.† — LOUIS.

† The author is now pursuing the course he advises in this note. While I was in Paris during the winters of 1833 and 1834, the students were able to know Louis's diagnosis of the typhoid affection in any case, by the invariable prescription which he made of Seltzer water (*Eau de Seltz*), in all cases of typhus. — H. I. B.

first days of the disease ; and, at a more advanced period, when the dejections are very numerous, these enemata, which are, in fact, internal fomentations, ought to be repeated two or three times a day, and we might, perhaps, farther multiply them, when the patients, enjoying their intellect, can make some effort to retain them for a certain time.

As every thing ought to tend, at this early period of the disease, to diminish the violence of the febrile action, and as the surrounding heat cannot but increase it, the temperature of the apartments of the patients should be but little elevated ; cold is less to be feared than the opposite extreme, but must also be guarded against, as it might excite or increase the cough, so common in the course of this affection.

So long as the febrile action is considerable, the heat of the skin great, the pulse much accelerated, the same treatment ought to be continued ; but at a later period, when these symptoms have lost much of their intensity, when the heat of the skin is moderate, the debility considerable, and there is no meteorism, or almost none, when there is no indication of a lesion of the mucous membrane of the stomach, and when debility is the principal symptom, we must have recourse to tonics. The inutility, apparent at least, of weak tonics ought to deter us from their use. If, however, we fear that we have made some error in our diagnosis with relation to the state of the stomach, we might begin with them, (*a cold infusion of cinchona and an enema of cinchona*), and if they produce no bad effects, pass rapidly to the use of strong tonics, as the sulphate of quinine in the dose of eight, ten, twelve and twenty grains, in an aromatic or gum potion, with the syrup of cinchona or any other, giving for drink the sweetened infusion of cinchona, or a vinous lemonade. The sulphate of quinine appears to me preferable to the extract of cinchona, since it leaves

to potions their liquidity and is only disliked for its bitterness ; whereas the extract renders the potions into which it enters an object of disgust to the patients, and does not, probably, possess greater virtues than the sulphate.

If, at the same period, the diarrhœa is copious, the enemata, as well as the drinks, ought to be more or less tonic ; for I always suppose the febrile action to be much diminished, very slight, or almost none at all, and then we have not so much an inflammation to combat as its consequences, and bitter medicines are indicated. We should commence with a weak infusion of cinchona, and gradually make it stronger, and if these means are without success, we should have recourse to simarouba, the utility of which, either as a potion or as an enema, has been demonstrated in some cases of chronic enteritis.

Tonics, if well indicated, produce, as we have seen, their good effects in a short time ; so that if we do not observe any sensible improvement after using them for four or five days, they must be discontinued, since we ought then to believe that there is an error in the diagnosis, and that some concealed disorder resists the employment of them.

I cannot, moreover, remind the reader too often, that the conditions most favorable to the success of tonics are a moderate acceleration of the pulse, for a still stronger reason, calmness of the circulation, a natural, or but slightly increased heat of the skin, a respiration of little frequency, a diarrhœa which is moderate, cerebral symptoms of little intensity, or almost absent, whatever may then be the degree of debility and prostration. These circumstances are found united, in a more or less remarkable degree, in the subjects of the last four observations.

But the treatment of the typhoid affection, such as that of which I have been explaining the principal parts, supposes that

we are about to treat the most simple cases, those in which the cerebral symptoms and the meteorism are but slight, in which no important complication engages the attention of the physician. What must we do in the opposite case?

We allow generally that a moderate *delirium* does not require a special and very energetic treatment, and according to the most common practice, we confined ourselves, in order to counteract it, to the application of blisters and sinapisms to the lower extremities, in the patients whose histories I have compiled. But it results from the facts previously detailed, that the blisters did not have an appreciable influence upon the cerebral symptoms, that if they exercised any upon the duration of the disease in the patients who have recovered, it was by prolonging it a little; we have also seen that we can only consider them as a new disease added to one or many other diseases; that they were often followed by the ulceration, or the complete destruction of the skin in the parts where they were applied; so that we cannot see from what motive we should prescribe them, as it would really be more conformable with experience to abstain from than to employ them. Neither, for similar reasons, do I believe, that a centre of defluxion, established by other means, by sinapisms in particular, can be useful, since a centre of defluxion far more active occurs in the small intestine, in the affection under consideration, and appears rather to excite centres of irritation in other organs than to preserve them from it.

We must, moreover, remember that if the greater part of the symptoms are explained by the state of the organs with which they are connected, this is not the case with the *delirium*, which we cannot explain by the apparent state of the brain; that, more than any other symptom, it seems to be dependent upon the small intestine, in the typhoid affection,

so that it appears that its treatment ought not to differ from that of the specific alteration of the small intestine. Moreover, if blisters had no appreciable influence upon the delirium and the somnolency, the same was the case with the application of ice upon the head and leeches to the neck, alone or in conjunction ; so that we do not see why we should recommend their employment against the delirium, whatever may be its degree ; and we cannot even explain the precept which has sanctioned the employment of ice in a similar case, unless we admit, what we have already seen an example of, that the application of ice upon the head, at a period already *remote* from the commencement of the delirium, and near that at which this symptom ceases spontaneously, was followed by a return of the intellect in some patients, and that, what was really nothing more than a simple coincidence, has been considered as a cause. General bleeding was not more useful than local ; so that we may say with truth, that up to the present time, medicine has no power over this symptom ; a want of power the more to be regretted from the fact, that the derangement of the cerebral functions, independently of the alterations of the brain, may become, as we have before seen, one of the principal causes of death.

Must we, then, remain quiet spectators of a violent delirium, or of extreme and continued drowsiness ? If experience does not speak in favor of blood-letting, neither does it show that it is injurious in these cases, at least when employed at a certain period. If, then, the delirium becomes violent on the twelfth or fifteenth day of the disease, in a patient who has been bled copiously enough during the first ten days, whose face is flushed and turgid, we may prescribe a new blood-letting of eight or ten ounces ; but, I think, we ought neither to

repeat it, nor to employ it to a greater degree. We ought, moreover, after what has been said above, to abstain from blisters, in favor of which experience has not decided, and the inconveniences of which are not doubted by any one.

It is with the *meteorism* as with the cerebral symptoms ; so long as it is confined within certain limits we may pay little attention to it ; but when it has reached a considerable height, it necessarily interferes very much with the action of the thoracic and abdominal viscera, and brings on a more or less marked alteration of the structure of the intestine ;* it is a formidable symptom ; what means must we employ against it ? On this point, as on so many others, experience is silent, and as there is something specific in meteorism, as we cannot explain its development by the state of the internal membrane of the intestine, it is proper for us to engage in experiments, which, sooner or later, may produce happy results ; with the more reason from the fact, that the large intestine is the principal seat of meteorism, and that we can apply therapeutic agents to its surface. With this intention, we could give enemata of a water slightly alkaline and mucilaginous, which, without doubt, would absorb a part of the gases, which distend the intestine, and would, perhaps, likewise, exert a favorable action upon the mucous membrane of the organ, if that be the source of the gases, or upon the substances with which that membrane is in contact. Perhaps also, in similar cases, the magnesia water ought to be given in drinks. I say nothing of mechanical means, of which the application is fatiguing, and which, moreover, have not, to my knowledge, been as successful as was anticipated.

Spasms of every kind appeared, like the delirium and drow-

* Page 197 of the first volume.— LOUIS.

siness, to call for particular relief. But while the delirium led us to the employment of antiphlogistics, spasms have been opposed by therapeutic agents of a contrary effect, as volatile stimulants, musk, &c. These medicines, the use of which has not been followed by success, ought, it seems to me, to be banished from practice under these circumstances ; since their probable effect must be to increase the febrile action, and, consequently, the violence of the symptoms ; since we cannot refer the spasms, any more than the delirium, to the state of the brain, except secondarily ; so that, what has been said with relation to delirium and other cerebral symptoms must be applied to spasms. Let it not be forgotten, however, that the cerebral symptoms mask all the others, or oppose the development of those which ought to correspond with the alterations which occur in the course of the delirium ; that if, then, the mucous membrane of the stomach is the seat of some lesion, as it so frequently is, it would not be possible for us to be certain of it ; and that by giving stimulating medicines, the utility of which no one can demonstrate, we should expose our patients to very serious difficulty.

Some other symptoms, of less frequent occurrence, or less directly allied to the nature of the disease, also very often present themselves, and seem to call for particular attention. Let us take a hasty view of the principal of these.

Inflammation of the fauces, which is commonly slight in the cases in which we observe it, does not require an active treatment ; and the small success of general and local blood-letting in genuine angina,* whatever be its degree, sufficiently indicates that we ought to abstain from it in patients affected with the typhoid disease. We should confine ourselves, then,

* Memoir upon the Antiphlogistic Treatment, before cited, page 412 of this volume. — LOUIS.

to emollient applications about the neck, and to demulcent gargles, if the patient can use them, or we should even touch the inflamed part with a pencil dipped in a mucilage. The same attention should be paid to the tongue in cases in which it is more or less red, thick, fissured or coated, these different states being, as we have before seen, more or less inflammatory.

Symptoms which indicate a lesion of the mucous membrane of the stomach, do not require the aid of blood-letting if it has been properly employed during the first days of the disease ; especially, as the alterations of this membrane do not commonly develop themselves until at a period remote from the commencement, when it has already been seen that blood-letting cannot be practised without injury to the patients. Under different circumstances, when the mildness of the first symptoms does not appear to require but one bleeding, and the gastric symptoms manifest themselves before the twentieth day of the affection, the debility being moderate, we may prescribe blood-letting to eight or ten ounces ; but after this period the loss of blood would probably be more injurious than useful ; we must abstain from it for the reasons already pointed out.

The cough very rarely calls for particular attention. So long as it is slight, as it most commonly is, and only connected with the state of the mucous membrane of the bronchia, the general treatment ought not to be modified. The addition of a gum potion is sufficient when the cough is a little troublesome and dependent on the same cause. If this cause is more severe, for example, an inflammation of the substance of the lungs, which is rarely the case, except in peculiar states of the atmosphere, we must distinguish, as I have said with relation to the gastric and cerebral symptoms, the cases in which it

manifests itself a short time after the commencement of the disease, from those in which it occurs at an advanced period, when there is considerable debility, and manage the treatment accordingly.

We should observe the same method in the treatment of erysipelas, which should be counteracted by one small blood-letting, or by simple emollients, according to the period at which it appears, or the state of the patient's health.

Longer details upon the treatment would not be consistent with the design of this work ; I shall, therefore, say no more on the subject. I ought not, however, to omit reminding the reader, that attention to cleanliness is, in no disease, so necessary as in the typhoid affection, especially at the period of the delirium, when the patients have involuntary evacuations ; their excretions in contact with the skin, for a considerable time, may concur towards the development of erysipelas, eschars, &c. It is no less indispensable to change frequently the situation of the patients, so as to avoid the bad effects of compression, and to renew the air of the apartments. We cannot be too prodigal of our attentions and of the resources of hygiene in an affection always of long duration, and whose course is so slightly influenced by therapeutic agents.

This influence, however, though limited, seems to me to be real. In the actual state of our science art can concur towards the favorable issue of the disease and accelerate its course, and the impartial examination of facts shows, with sufficient precision, the best manner of employing the two principal means which medicine places in our power, blood-letting and tonics. Moreover, the little success obtained hitherto, ought not to discourage the friends of science and of humanity, and induce them to believe that we shall never

arrive at a treatment more appropriate to the disease we have been considering. Who could have foreseen the effects of opium, and of cinchona, and the preservative virtue of vaccination? Chance and observation have given us these powerful means of preservation; what chance and observation have done they can do again, and, doubtless, they will do so; and therapeutics, as well as the other parts of our science, must expect every thing from observation.

APPENDIX TO THE SECOND VOLUME.

BY THE TRANSLATOR.

SECTION I.—PRESCRIPTIONS.

The following prescriptions are mentioned in this volume, and I obtained their explanations from the sources which are named in the first volume.

1. Bour. oxym. nitreé, page 361, line 5. I can find no prescription corresponding to these words either in Nysten's Dictionary, the Formularies of Edwards, Foy, &c., or in Virey's *Traité de Pharmacie*. Bourrache (*Borrago Officinalis*) is a diaphoretic and diuretic. It is in this place combined with Oxymel and Nitre.

2. Diac, page 58, line 21. Probably an abbreviation for diacodium, a syrup of popy. One ounce is equivalent to nearly a grain of opium. — E. and V.

3. Eau Bénite de la Charité, page 43, line 5.

R Ant. Tart. grs. vi.

Aquæ ℥ viij. M.

Take half, and one hour afterwards the remainder, unless previous vomiting. — Foy.

4. Leroy's Remedy, page 179, line 22. I have not been able to find any account of this medicine in any work on pharmacy, but M. Viau, now resident here, and who was formerly an apothecary in the French kingdom, informs me that it is composed as follows,

℞ Jalap, bruised,
Scammony,
Alcohol. M.

Let the mixture stand for a time, then filter and add Syrup of Senna. Its effects are very similar to the Eau-de-vie Allemande.

5. Orge. Oxymel. — See No. 5, Sec. 1, of Appendix to Vol. I.

6. Orge. Sir. Tart. — See No. 6, Sec. 1, of Appendix to Vol. I.

7. Tamarind whey, page 322, line 10. — See Sec. 1 of Appendix to Vol. I. Petit-lait Tamarindé.

8. White Decoction, page 303, line 31.

℞ Corn. Cervi ℥ss.
White Bread ℥i.
Water lbij. M.

Boil to a third and add Syrup of Quince ℥ij. Dose ℥iv. or ℥v.
— E. and V.

SECTION II.—VERIFICATION OF THE TABLES AND REFERENCES.

In the first volume I made a partial promise to state something more definite than I was then able to do, in relation to the numerical results of Louis, and I hoped to be able to do so on an examination of the facts upon which these results depend, viz., the observations which are detailed throughout the course of the work. Upon examination, I find that it will not be possible to do any thing more than present as faithful a translation as possible of the original. The critical reader will find, I doubt not, some discrepancies between the results and the data. But so far as I can discover, there are none which materially affect the main points laid down in the work. I have thought it best to

inform the author of the discrepancies which I noticed, and not to try to explain them in this translation, as, if I attempted to do so, I should give unfair statements in relation to many topics which are, doubtless, correctly stated in the original manuscripts of Louis.

SECTION III.—IS TYPHUS FEVER IDENTICAL WITH INTERMITTENT?*

By some the affirmative of this question is sustained. They quote the forty-fourth observation as a proof of intermittent fever being of the same nature as typhus, for in this case, say they, the two diseases were connected, in fact, they were one and the same disease. Louis makes some remarks relative to the question, and states that although there were daily paroxysms for eight days, still "the appetite did not return during the intervals," &c., (page 307); and from these circumstances he did not think the case to be intermittent fever. Now in addition to the statements of Louis, I will make a few suggestions which seem to add weight to his opinion, and afterwards I will examine some other diseases, to see if they do not sometimes have a fever of an intermittent type connected with them.

1st. If the reader will turn to the first examination made in this observation, he will see that there were, it is true, chill, heat and sweat on the first day of attack, but that afterwards the author mentions merely the chill as having occurred during eight days. Is this the course of quotidian fever? Assuredly not. Some may say that perhaps there were heat and sweat, but we have no right to presume so, inasmuch as according to Louis's own principles, he could not, on his statement in the present case, suppose that heat and sweat occurred. So on page 303, third paragraph, it is mentioned expressly that there was no sweat. Now, so far as I know, the sole reason for supposing the forty-fourth case given by Louis to be one of typhus combined with and preceded by intermittent, is the daily paroxysm, therefore if these paroxysms did not have the whole aspect which

* See notes on pages 260 and 308.

those of true intermittent possess, we might, I think, doubt whether it was really one of intermittent fever. Louis confesses that the disease was a problem to him until perforation of the intestine took place.

2d. As typhus fever commences, like various other acute diseases, with a chill, heat and sweat, I see no reason why it should not, like them, have daily paroxysms, and there is as much reason, for example, when a chill is repeated daily for some time in pneumonia, for us to say that intermittent fever is combined with the pneumonia, as there is for us to say that intermittent was combined with typhus in this case. I have looked at the data given by Louis from pages 221 to 225, in relation to chills.

IN FATAL CASES OF TYPHUS.

Thirty-one out of thirty-three had chills; twenty-six had them frequently, ceasing after entrance.

IN FAVORABLE CASES OF TYPHUS.

In severe cases, twenty-seven out of forty-five had chills frequently, ceasing after entrance. In slight cases, twenty-four had them, and twice they occurred regularly.

IN FATAL CASES OF OTHER DISEASES.

In *pneumonia*, nineteen out of twenty-five had chills; they seldom returned; in other diseases not a third part had them.

IN FAVORABLE CASES OF OTHER DISEASES.

In *pneumonia*, forty-five out of fifty-four had chills, which were repeated in eleven during two or three days, and ceased on entrance into the hospital.

In *variola*, the chills occurred in a little more than half of the subjects, and in a majority of these cases they returned at many different times.

In *scarlatina* and *measles*, two thirds had chill, and generally they occurred several days in succession.

In *erysipelas*, the chills occurred in twenty-four out of thirty-eight, and were repeated commonly with intermissions.

In *rheumatism* and *angina tonsillaris*, chills occurred in two thirds of the cases, and at several different times in some cases. *A daily, regular chill occurred in a woman affected with rheumatism, which yielded to quinine alone.*

In *pulmonary catarrh*, sixty-four out of seventy had chills; three had them at many different times; *eight had regular paroxysms.*

In *enteritis*, sixty out of eighty-four had chills; in half of the cases they returned at many different times; *in five they returned under the quotidian or tertian type, and in three the paroxysms yielded to cinchona alone.*

I might make similar statements in regard to heat and sweat, but as they are not so marked as those in relation to the chill, I think it unnecessary. Now I would know whether we must allow that intermittent fever was connected with rheumatism in the cases given above. The same question I would ask relative to the statements respecting pulmonary catarrh and enteritis. Was intermittent fever combined with them all? If we allow that this was not true for these complaints, why should we draw a different inference in regard to the apparent combination of typhus with intermittent in the forty-fourth observation?

But again, suppose we do allow, for the sake of argument, that this combination existed, should we not be going too far if we said, that because intermittent fever is combined with typhus in a case, the two fevers are of the same general character? For my own part, I see no reason why I may not make the same inferences in regard to the other diseases, and say that rheumatism, enteritis, &c., are identical with typhus. The above statements are satisfactory to my mind, and though I allow that sometimes we may be in doubt as to the diagnosis of intermittent and typhus fevers, still I cannot imagine that to be any reason for supposing them to be different forms of the same disease.

3. Others, however, explain this difficulty of the forty-fourth observation by supposing that there was no real combination of intermittent with typhus, but simply that one was the exciting cause of the other. This seems to be a true explanation of some cases of typhus which occur after exposure to the causes which usually produce in-

termittent; but in the present case, the return of the chill, after absence for a time, is difficult to be explained on this principle.

SECTION IV.—PECULIAR TERMS.

Poissex. I have always translated this word by the English expression, *sticky*. The latter is by no means elegant, and if I could have used another which would have conveyed the meaning of the French word as exactly, I should have done so. I have consulted many authorities, and they all agree in giving this definition.

Courbature. I found it difficult to give a good translation to this word, inasmuch as I confess I have never attached any very definite idea to the expression. I have translated it "painful weariness" or "lassitude."

SECTION V.—ERRATA.

Page 59, line 16, for "barley water sweetened," &c., read "sweetened barley water," &c.

Page 153, line 6, for "*thirtieth*" read "twenty-fifth." Thirtieth in the original.

Page 163, line 22, for "third" read "ninth." Third in original.

Page 222, line 2, for "from" read "for."

Page 282, line 6, for "twenty-third" read "twenty-seventh." Twenty-third in original.

Page 365, line 23, for "as well in" read "as well as in."

Also, see Vol. I, page 175, line 23, for "ten feet" read "ten inches."

SECTION VI.—FRENCH MEASURES.

Page 164, line 28. A scruple of ether corresponds to about sixty minims. — E. and V.





